DOCUMENT RESUME

ED 161 702 SE 025 149

AUTHOR	Blackwood, Paul E.
TITLE	Science Teaching in the Elementary Schools: A Survey of Practices. Circular Number 749.
INSTITUTION	Department of Health, Education, and Welfare, Washington, D.C.
REPORT NO	OE-29059
PUB DATE	65
NOTE	112p.; Not available in hard copy due to marginal legibility of original
AVAILABLE FROM	Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 ($0.65)
EDRS PRICE	MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS	*Academically Gifted; Educational Research; Elementary Education; *Elementary School Science; *Inservice Education; *Program Descriptions; Science Education; Science Equipment; *Surveys; Teaching Methods
IDENTIFIERS	National Science Foundation

ABSTRACT

Detailed statistical information concerning elementary school science education in the 1961-62 school year is contained in this document. Survey information from the approximately [illegible],500 school districts participating in the study describe: (1) the enrollment and organization of public elementary schools; (2) the science curriculum, facilities, and equipment in elementary schools; (3) provisions for the identification and programs for working with children with special interests or aptitude in science and (4) inservice education activities in regard to elementary school science. A summary of the findings of the surveys as well as recommendations concerning the improvement of elementary school science instruction is provided. (CP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED161702

SE 025 149

OE-29059

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

science teaching

A Survey of Practices

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Education

Highlights

Over 85 percent of the public elementary schools believe that teaching children *to learn how to think* and *to develop their curiosity* are very important science teaching objectives. *To teach knowledge about typical areas of science study* and *to help children learn concepts and ideas for interpreting their environment* also rate high as very important objectives.

✦ ✦ ✦

Fifteen percent of all public elementary schools are *departmentalized* for science teaching at some grade level. However, 36 percent of the schools with 800 and over enrollment and less than one percent with 49 and under enrollment are departmentalized at some grade level.

✦ ✦ ✦

The percent of public elementary schools that *do not teach science at all* is negligible from the second grade up.

✦ ✦ ✦

The percent of public elementary schools that *teach science as a separate subject* increases by grade from 24 percent in kindergarten to 79 percent in the eighth grade.

✦ ✦ ✦

The *time* devoted to science instruction varies in the public elementary schools from less than 20 to over 261 minutes per week. The median number of minutes for *all schools* increases by grade from 45 minutes per week in kindergarten to 135 minutes in the eighth grade.

✦ ✦ ✦

Science is *taught by a classroom teacher without the help of an elementary science specialist* in over 80 percent of the schools in grades one to five, and in over 70 percent of the schools in grades six to eight.

✦ ✦ ✦

Science *consultant help is available* in 41 percent of all public elementary schools, with such help over four times as prevalent in the largest schools as in the smallest.

✦ ✦ ✦

About 8 percent of all public elementary schools believe their *science equipment and supplies* are very plentiful; 46 percent, generally adequate; 35 percent, far from adequate; and 11 percent, completely lacking.

✦ ✦ ✦

The *annual per-pupil outlay* for science equipment and apparatus reported by the most public elementary schools ranges from 11 to 14 cents, although 15 percent of all schools spend $1.51 and over per pupil.

✦ ✦ ✦

The two *barriers to effective science teaching* ranked highest for all public elementary schools are the *lack of adequate consultant service* and the *lack of supplies and equipment.*

OE-29059
Circular Number 749

science teaching in the elementary schools

A Survey of Practices

By
PAUL E. BLACKWOOD
Specialist for Elementary Science

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Anthony J. Celebrezze, Secretary

Office of Education
Francis Keppel, Commissioner

Superintendent of Documents Catalog No. FS 5.229:29059

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1965

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402
Price 65 cents

Foreword

Science teaching in many elementary schools has had a long history, with its roots clearly planted in the curriculum for the past century. Dozens of science textbooks for children have been written, school systems have developed curriculum guides, and educators throughout the Nation have given serious attention to teaching children about the objects and forces and relationships in the universe of nature.

In spite of this long history, science in the elementary school has not been so universally accepted and taught as some other elementary school subjects. During the past few years, however, there has been an upswing of interest. One example is the widespread organization of science advisory or curriculum committees at the local, State, and national levels.

A flood of questions about science teaching in the elementary school has accompanied this current interest. Curriculum workers want to know present practices regarding science teaching: How is science taught? Who teaches science? How common is TV science teaching? What equipment is available? How much is spent by schools for science teaching materials?

The Office of Education has not previously made a formal nationwide study of science teaching in the elementary schools. There has been no comprehensive basis for answering these kinds of questions except by opinion based on general observations or local studies. To remedy this, the present study has sought information on a number of these recurring questions.

We want to thank the superintendents, principals, supervisors, and science educators in several States who gave valuable assistance in developing the survey form. We also wish to thank the elementary school principals throughout the Nation who, with the advice of teachers in their schools, helped make the study possible by filling out the survey form. The science supervisors and consultants in elementary education in the State departments of education also assisted in the study by urging the schools in their States to return the completed survey form.

Ralph C. M. Flynt,
Associate Commissioner for
Educational Research and Development.

Francis A. J. Ianni,
Director, Division of Educational Research.

CONTENTS

Page

Foreword III

CHAPTER 1. Introduction 1
  - Background and Purpose 1
  - Procedure 1
  - Presentation of the Data 2
  - Organization of the Report 2

CHAPTER 2. Enrollment and Organization of Public Elementary Schools 3
  - Enrollment 3
  - Number of Schools by Type 3
  - Average Class Size 4
  - Nongraded Classes 5

CHAPTER 3. Science Teaching in the Elementary School 6
  - Objectives 6
  - Place in the Curriculum 7
  - Teaching Patterns 7
  - Time for Science 8
  - Departmentalization 11
  - Relation to Health and Conservation 12
  - Relation to Social Studies 13
  - Personnel for Teaching Science 13
  - Resources 17
  - Facilities and Equipment 22
  - Funds for Science 26
  - Barriers to Effective Science Teaching 27
  - Exhibition of Children's Science Work 28

CHAPTER 4. Children With Special Aptitude or Interest in Science 29
  - Identification of Children 29
  - Special Provisions 29
  - Status of Science Clubs in the Elementary School 32

CHAPTER 5. Inservice Education Activities 33
  - Teachers' Meetings 33
  - Curriculum Development and Revision Opportunity 33
  - Elementary Science Courses 33
  - Elementary Science Workshops 34
  - Visitations and Demonstration Teaching 34
  - TV and Radio Programs 34

Page

CHAPTER 6. Summary and Implications 35
  - Summary of Selected Findings 35
  - Recommendations and Implications 37

CHAPTER 7. Characteristics of a Good Science Program 38

Appendixes

APPENDIX A. Basic Tables 41

APPENDIX B. Survey Questionnaire Form 91

APPENDIX C. Technical Notes 101

APPENDIX D. Bibliography 103

Text Tables

A. Number of public elementary schools in each of the four school enrollment and five administrative unit enrollment groups: United States, 1961–62 2

B. Objectives of teaching science rated by public elementary schools according to importance and ranked according to percent of schools believing each objective very important: United States, 1961–62 6

C. Percent of public elementary schools departmentalized for science instruction at some grade level, by school enrollment group: United States, 1961–62 12

D. Science teaching aids ranked, by grade level, according to the percent of public elementary schools using them very often: United States, 1961–62 20

E. The third quartile number of items of science equipment and apparatus for public elementary schools, by school enrollment groups: United States, 1961–62 24

F. Barriers to effective science teaching in public elementary schools ranked for all schools, for school enrollment groups, and for administrative unit enrollment groups on their mean degree of difficulty: United States, 1961–62 28

Page

G. Percent of public elementary schools making extra provisions for children with special aptitude or interest in science, by grade group: United States, 1961-62 30

Figures

1. Percent distribution of public elementary school students by grade: United States, 1961-62 3
2. Percent of public elementary schools by the most common grade groups: United States, 1961-62 4
3. Percent of public elementary schools that teach science more than one-half year, by grade: United States, 1961-62 8
4. Percent of public elementary schools that teach science by various patterns, by grade: United States, 1961-62 9
5. Median number of minutes of science instruction per week, by grade, in public elementary schools in each school enrollment group: United States, 1961-62 10
6. Percent distribution of public elementary schools by number of minutes per week science is taught in kindergarten and grades one to eight: United States, 1961-62 11
7. Percent of public elementary schools that teach health in various ways, by grade levels: United States, 1961-62 12
8. Percent of public elementary schools that teach conservation in various ways, by grade levels: United States, 1961-62 13
9. Percent of public elementary schools, by grade, using various persons or combinations of persons to teach science: United States, 1961-62 15
10. Percent of public elementary schools with science consultant help available, by school enrollment and administrative unit enrollment groups: United States, 1961-62 16
11. Ways consultants are used very often in teaching science, ranked within school enrollment groups: United States, 1961-62 18
12. Percent of public elementary schools indicating science equipment and supplies far from adequate and completely lacking: United States, 1961-62 23
13. Percent of public elementary schools that teach science in various types of rooms, by grade, in the 400 to 799 enrollment group: United States, 1961-62 25
14. Percent of public elementary schools by annual per-pupil outlay for science equipment and apparatus: United States, 1961-62 26

Basic Tables

Page

1. Percent of public elementary schools by school enrollment and administrative unit enrollment, and by response classification. 1961-62 41
2. Total enrollment and enrollment by grade in public elementary schools, by school enrollment and administrative unit enrollment. 1961-62 41
3. Percent of public elementary schools by type of school and by school enrollment. 1961-62 41
4. Percent of public elementary schools by class size category of school averages, by grades, by school enrollment, and by administrative unit enrollment. 1961-62 42
5. Average class size by grade in public elementary schools, by school enrollment and by administrative unit enrollment. 1961-62 43
6. Percent of public elementary schools organized by standard grades or nongraded classes by level, by school enrollment and by administrative unit enrollment. 1961-62 43
7. Percent of public elementary schools departmentalized for science teaching at some grade level, by school enrollment and by administrative unit enrollment. 1961-62 43
8. Percent of public elementary schools assigning various degrees of importance to selected science teaching objectives, by school enrollment. 1961-62 44
9. Percent of public elementary schools teaching science as a definite part of the curriculum for various parts of a school year, by grade and by school enrollment. 1961-62 45
10. Percent of public elementary schools with various science teaching patterns, by grade and by school enrollment. 1961-62 46
11. Percent of public elementary schools by total and mean number of periods per week of science instruction, by grade and by school enrollment. 1961-62 47
12. Percent of public elementary schools with departmentalized science teaching, by grade, by school enrollment, and by administrative unit enrollment. 1961-62 48
13. Mean, median, and mode minutes of instruction in science per week in public elementary schools, by grade and by school enrollment. 1961-62 49
14. Median and percent of public elementary schools by number of minutes per week devoted to science teaching, by grade, by school enrollment, and by administrative unit enrollment. 1961-62 49
15. Percent of public elementary schools in which science is taught by given persons, by grade and by school enrollment. 1961-62 52

Page

16. Percent of public elementary schools with science consultant help available, by school enrollment and by administrative unit enrollment. 1961–62 55

17. Percent of public elementary schools with science consultant help available, by type of help, by school enrollment, and by administrative unit enrollment. 1961–62 55

18. Percent of public elementary schools that use consultants, by frequency, by grade groups and school enrollment. 1961–62 55

19. Percent of public elementary schools using consultants in various ways, by frequency, by grade group, and by school enrollment. 1961–62 56

20. Percent of public elementary schools in which health is taught primarily by a given method, by grade group and by school enrollment. 1961–62 60

21. Percent of public elementary schools using various resources for suggestions of what to study in science, by frequency, by grade group, by school enrollment, and by administrative unit enrollment. 1961–62 61

22. Percent of elementary schools by average class size of grade groups and by frequency of use of selected teaching aids. 1961–62 63

23. Percent of public elementary schools using selected teaching aids, by frequency of use, by grade group, by school enrollment, and by administrative unit enrollment. 1961–62 66

24. Percent of public elementary schools in which conservation education is taught primarily by a given method, by grade group and by school enrollment. 1961–62 74

25. Percent of public elementary schools using adopted science textbook series, by grade group, by school enrollment, and by administrative unit enrollment. 1961–62 74

26. Percent of public elementary schools with various policies regarding the teaching of science in relation to social studies, by school enrollment and by administrative unit enrollment. 1961–62 75

27. Percent of public elementary schools by availability of science equipment and supplies, by school enrollment, and by administrative unit enrollment. 1961–62 75

28. Percent of public elementary schools by availability of science equipment and supplies, and by school average class size. 1961–62 75

29. Percent of public elementary schools that teach science in various types of rooms, by grade and by school enrollment. 1961–62 76

Page

30. Mean, median, and mode number of items of science equipment and apparatus in public elementary schools, by school enrollment, and by administrative unit enrollment. 1961–62 77

31. Percent of public elementary schools using improvised equipment, by frequency, by grade group, and by school enrollment. 1961–62 80

32. Percent of public elementary schools having petty cash funds for science supplies, by school enrollment and by administrative unit enrollment. 1961–62 80

33. Percent of public elementary schools by status of science clubs, by school enrollment, and by administrative unit enrollment. 1961–62 80

34. Mean, median, and mode annual per-pupil outlay and percent of public elementary schools by annual per-pupil outlay for science equipment and apparatus, by school enrollment and administrative unit enrollment. 1961–62 81

35. Percent of public elementary schools having access to nonschool source of funds for science equipment and supplies, by school enrollment and by administrative unit enrollment. 1961–62 81

36. Percent of public elementary schools with various nonschool sources of funds for science equipment and supplies, by school enrollment and by administrative unit enrollment. 1961–62 81

37. Percent of public elementary schools by degree of difficulty of various barriers to science teaching, by school enrollment and by administrative unit enrollment. 1961–62 82

38. Annual per-pupil expenditure in public elementary schools for science equipment and supplies, by degree of difficulty of selected barriers to science teaching and by school enrollment. 1961–62 83

39. Percent of public elementary schools by degree of difficulty of selected barriers to science teaching and school average class size. 1961–62 83

40. Percent of public elementary schools by ways of exhibiting children's science work, and by school enrollment. 1961–62 84

41. Percent of public elementary schools with science inservice education activities, by sponsorship, by school enrollment, and by administrative unit enrollment. 1961–62 85

42. Percent of public elementary schools using definite procedures to identify children with special interest or aptitude in science, by school enrollment and by administrative unit enrollment. 1961–62 86

Page

43. Percent of public elementary schools making extra provisions for children with special aptitude or interest in science, by type and frequency of provisions, by grade group, and by school enrollment. 1961–62 ... 87

44. Percent of public elementary schools by type of procedures used to identify children with special interest or aptitude in science, by school enrollment and by administrative unit enrollment. 1961–62 ... 89

Chapter 1

Introduction

Background and Purpose

THIS IS A REPORT of a nationwide study of science teaching in the public elementary schools.

Although science has been taught in the elementary schools for half a century, the emphasis has varied from school to school and from classroom to classroom within a school. In schools where science has been taught, there has been a great variety in the purposes, methods, and resources available. Perhaps such variation as has existed is due in part to the fact that, unlike almost every other subject, science in the elementary school has not been required by State law in most States. Though variety of methods and procedures and unequal emphasis on science have been evident to anyone visiting schools or talking with teachers and principals, the extent or degree of this variation has not been known, nor has the degree of similarity in programs and practices.

With the increased national interest in improving science education at all levels, evidenced in part by the expenditure of funds by the Office of Education through its National Defense Education Act and by the National Science Foundation through its science curriculum improvement projects, it seemed imperative that more knowledge about the status of science in the elementary schools be available. Thus, the present study was undertaken.

The purpose of the study was to obtain information about procedures, policies, practices, and conditions affecting science teaching in the public elementary schools. Some of the specific questions for which answers were sought are:

- **Who teaches science in the elementary schools?**
- **What consultant help is available?**
- **How much time is devoted to science?**
- **How much is spent for science materials?**
- **What materials and equipment are available?**
- **What are the accepted purposes for teaching science?**
- **What science inservice opportunities are available to teachers?**
- **What pattern of science teaching most aptly describes the way science is taught?**
- **What is the practice regarding the adoption of science textbooks?**
- **In what type of room is science predominantly taught?**
- **Are science clubs available to pupils in the schools?**

Answers to such questions, derived from the nationwide study, are reported in this publication.

Procedure

Obtaining the Information [1]

Questionnaire.—Information for the study was obtained by means of a questionnaire. An examination of the questionnaire by the reader will give an overview of the information sought. (Appendix B.)

The universe.—The study represents all public elementary schools in the United States. An elementary school as defined for this study is "an educational organization under the principal or head teacher, including any combination of grades from nursery school and/or kindergarten through grade eight, except any upper grades under a junior high organization." Public schools from

---

[1] Certain technical aspects of the study, including the sample design and statistical treatment of the data, are discussed in appendix C, Technical Notes.

11

every State are included in the study, although the study is not an attempt to report the status of science teaching by region or by State.

The respondent in this study was the individual elementary school. The principal of the school was asked to reply with help as needed from the teachers. (The questionnaire was sent to individual elementary schools instead of to the central office of a school system on the assumption that the variation in science teaching practices among schools in a school system was too great to permit a single valid reply from a central office. It is believed that information from individual elementary schools gives a more accurate picture of science teaching in public elementary schools than would a description based on replies from central offices of school administrative units.)

The sample.—Schools that received the questionnaire were selected through a two-stage sampling process. The first stage consisted of choosing a stratified sample of 1,597 administrative units (school districts) from the 34,040 school administrative units reported by the Bureau of the Census for the school year 1959–60. The second-stage sample, constituting the list of schools to receive the questionnaire, was drawn from the composite list of 18,866 individual elementary schools in the 1,597 selected administrative units. The second-stage sample was stratified by school enrollment size to assure representation in each of these enrollment groups: *800 and over* pupils, *400 to 799*, *50 to 399*, and *49 and under*. In all, 1,680 eligible schools received the questionnaire.

Response.—Followups by letter, telephone calls, and telegrams yielded a substantial return of the questionnaires. A subsample was made of the nonresponse group, and these returns were used to represent the entire nonresponse group. As a result, the equivalent of 1,476 returns or 87 percent response was achieved. Table 1, appendix A, shows the percent of response and nonresponse for all schools and for schools by enrollment group and by administrative unit enrollment.

Presentation of the Data

The data in this study are presented in 44 basic tables. (See appendix A.) With a few exceptions the data are analyzed by *school enrollment groups* only or by *school enrollment groups* and *administrative unit enrollments*. The former grouping refers to the number of children enrolled in the elementary school, and the latter refers to the size of the administrative units (districts) in terms of the number of school-age pupils in the district. Four school size groups and five administrative unit enrollment groups are used. These are shown in table A, which includes also the total number of public elementary schools represented in each cell. This latter figure is of interest because the actual number of schools involved is not reported in discussing the responses; rather, the *percent* of schools is used.

Table A.—Number of public elementary schools in each of the 4 school enrollment and 5 administrative unit enrollment groups: United States, 1961–62

School enrollment groups	Total schools	Administrative unit enrollment				
		25,000 and over	6,000 to 24,999	3,000 to 5,999	600 to 2,999	599 and under
All groups	**87,772**	**9,080**	**13,375**	**10,838**	**18,048**	**36,431**
800 and over	4,416	2,337	966	446	667	-------
400 to 799	20,851	4,318	5,310	3,770	5,829	1,624
50 to 399	37,661	2,296	6,129	5,850	8,941	14,445
49 and under	24,844	129	970	772	2,611	20,362

Organization of the Report

Chapter 2 of the report presents some of the general information about public elementary schools against which the more detailed analysis of science teaching can be considered. Chapter 3 presents the major findings that relate primarily to science teaching. Chapter 4 deals with some of the special provisions made for children with unusual aptitude or interest in science, and chapter 5 deals with the inservice education activities for improving science teaching. Chapter 6 gives a summary of the study with some implications for the improvement of science teaching in the elementary schools of our Nation. Finally, chapter 7 discusses some characteristics of a good science program.

The tables in appendix A are discussed as they relate to the material in the chapters and are, therefore, not discussed in the order they appear in the appendix.

Chapter 2

Enrollment and Organization of Public Elementary Schools

Considerable general information about the elementary school has been obtained in this study as background for the more specific analysis of science teaching practices. This chapter deals with some of this general information, such as school enrollment, the number of schools of different types, average class size, and nongraded classes.

Enrollment

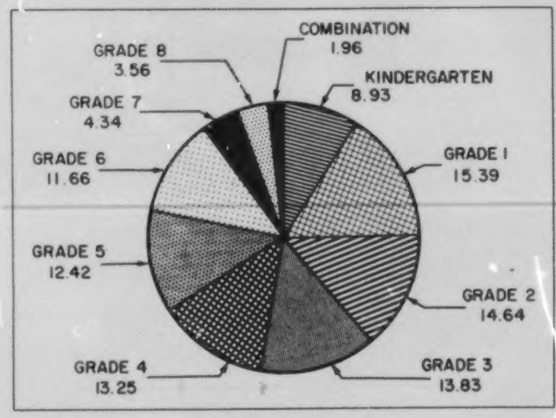
This study shows that an estimated 24,567,000 children were enrolled in the public elementary schools during 1961–62. (See table 2.) This total does not include children in special schools for the mentally handicapped, blind, deaf, or otherwise physically or psychologically disabled, since special schools were not included in this study.

Of the children in public elementary schools, 4,487,000 were enrolled in the *800 and over* schools. By far the largest number of pupils, 11,932,000, were in schools with an enrollment of *400 to 799*. The smallest number, 564,000, were in the *49 and under* schools.

When distribution of children is considered by administrative unit enrollment, the largest number, 6,141,000, were in the *600 to 2,999* category, with the next largest number, 5,780,000, in the category of *25,000 or over*.

The largest number of children were in the first grade, with the number decreasing by grade. (See table 2.) Figure 1 shows the percent distribution of children by grade. The children in grades seven and eight reported here were only those attending elementary schools, not those in junior high schools.

FIGURE 1.—Percent distribution of public elementary school students by grade: United States, 1961–62



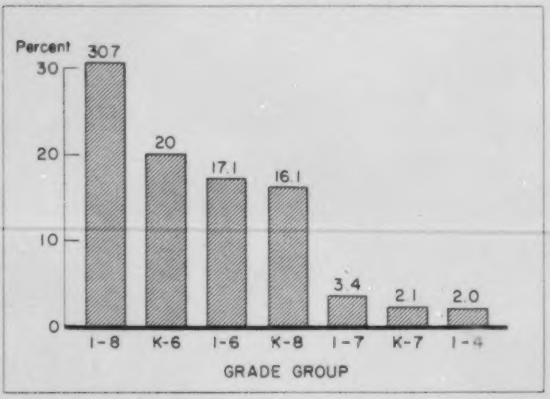
Number of Schools by Type

Each school was asked to indicate the grade grouping it was organized to accommodate. In the questionnaire the various grade groupings were referred to as types of schools, such as kindergarten to grade six, grades one to six, kindergarten to grade eight.

Public elementary schools include a surprising variety of grade groupings. (See table 3.) Schools including grades one to eight were most prevalent, followed in order by those including kindergarten to grade six, grades one to six, and kindergarten to grade eight. These four common groupings accounted for nearly 84 percent of all the schools.

The patterns varied somewhat by school enrollment groups. For example, in the *800 and over* and the *400 to 799* groups, the kindergarten to sixth-grade plan was most common, and in the *50 to 399* and the *49 and under* enrollment groups the one to eight organization was most prevalent. Grades one to seven and kindergarten to grade seven schools were common in each school enrollment group. Figure 2 shows the distribution of schools by the most common grade groups.

FIGURE 2.—Percent of public elementary schools by the most common grade groups: United States, 1961–62



Average Class Size

The average class size, by grade, is reported in table 5. Classes in the *800 and over* schools averaged 32 to 34 pupils, but only three or four as an average in the *49 and under* schools. The averages showing in the total schools column of table 5 were lowered considerably by these small school averages.

The average class size in schools in the *25,000 and over* administrative units was 31 or over except in combination classes, whereas it was 13 or under in the *599 and under* administrative units also except in combination classes. In general, the one-room rural schools, which have very small class averages, were represented in the *599 and under* administrative units. The average class size for all grades in the *6,000 to 24,999*, *3,000 to 5,999*, and the *600 to 2,999* administrative units ranged from 24 to 31 pupils, but most classes averaged 26 or 27 pupils.

The presentation of average class sizes in table 5 obscures the fact that many elementary schools had exceedingly high average class sizes, well over 35 in a large percent of the schools. Large classes present problems in every subject area. In science, individual exploration, investigation, and use of materials are essential to good teaching; therefore, large classes make effective science teaching difficult.

To discover more precisely the prevalence of large classes, an analysis was made to discover the percent of schools, by grade, in each of several average class-size categories. As seen in table 4, the class-size categories of school averages used were: *19 and under*, *20 to 24*, *25 to 29*, *30 to 34*, and *35 and over*. Data are presented for each grade. The total schools column shows that about 18 percent of all schools had more than *35 and over* in kindergarten. About 8 to 9 percent of the schools had class averages of *35 and over* in grades one to six.

The percent for total schools, however, obscures the great range of differences between the school enrollment groups and between the schools in the different administrative unit enrollment categories. This is illustrated, for example, by the data for grade three which indicate that at the time of the study 39.3 percent of all schools had a school class average of *19 and under*; however, the largest schools had no class averages so small, and over 99 percent of the smallest schools have class averages of *19 and under*. Also, 5.4 percent of the schools in the *25,000 and over* administrative unit group and 72.9 percent of the *599 and under* had class averages of *19 and under*. This disparity among the school enrollment groups and administrative unit enrollment groups supports the observation that the percentages in the total schools column are not descriptive of any particular group of schools.

Of the *800 and over* schools, 36.6 percent had school class-size averages of *35 and over* in kindergarten, 20.7 percent in first grade, and 24.2 percent in second grade. This percent increased by grade, and 46.9 percent of the largest schools had an average class size of *35 and over* in the eighth grade.

An average class size of *30 to 34* is considered as "large" by most leaders in elementary education. Table 4 shows that a substantial percent of every school enrollment group except the *49 and under* had an average class size of *30 to 34*. The largest total number of children was enrolled in the *400 to 799* school enrollment group. (See table 2.)

Nongraded Classes

The organization of nongraded classes as a way of promoting individual child progress in school has received considerable attention during recent years. The practice of placing children in nongraded classes has been and continues to be more common at the primary school level. In 1961 Dean(8)[1] reported that about 18 percent of the urban schools were using a type of "primary unit," an administrative device by which children are grouped to permit continuous progress during a period of two or more consecutive years.

In the present study schools were asked to indicate whether they had *standard grades* or *nongraded* classes at the primary, intermediate, and upper levels. No precise definition of *nongraded* and *standard grades* was given the respondent.

The study indicates that 1.6 percent of *all schools*[2] had nongraded classes at some level. (See table 6.) At the primary level 2.4 percent of all schools had nongraded classes. This percent was considerably higher in the *800 and over* and the *400 to 799* schools than in the smaller schools. Similarly, the percent of schools in large administrative units that had nongraded classes is higher than in the small administrative units.

---

[1] Numbers in parentheses in the text refer to references listed by number in the Bibliography, appendix D.

[2] Throughout the report the phrase *all schools* refers to the data in the tables for *total schools*. *Total schools* and *all schools* are used interchangeably.

Chapter 3

Science Teaching in the Elementary School

THE RESULTS OF THIS STUDY which relate most directly to science teaching are discussed in this chapter.

Objectives

Schools were asked to rate 10 selected objectives for teaching science. Each objective was to be rated as *very important*, *of some importance*, or *of little or no importance*. Table 8 reports the results for all schools and for schools by school enrollment groups.

In several instances there are significant differences in the percent of the various school enrollment groups that consider an objective *very important*. For example, 74.1 percent of the *49 and under* schools and 83.1 percent of the *800 and over* schools consider *developing problem-solving skills* as *very important*. Also, 59.7 percent of the *49 and under* schools report that *to prepare for high school* is *very important*, but only 29.7 percent of the *800 and over* schools feel this objective is *very important*. The percent for any school enrollment group, however, does not, in most instances, vary greatly from the percent for total schools. Such variations as do exist do not seem to vary consistently from large to small school enrollment groups.

Over 97 percent of the schools consider seven of the objectives as being either *very important* or *of some importance*. For example, *to develop curiosity* is considered *very important* by 87 percent of the schools and *of some importance* by 12 percent, a total of 99 percent. At the other extreme, *to develop scientists*, *to prepare for high school science*, and *to develop hobbies and leisure-time activities* are the only objectives that are considered *of little or no importance* by a significant percent of the schools.

Since there is a national concern for the preparation of scientists, it is of special interest to note that over one-half of the schools in the study believe *to develop scientists* is *of some importance*, but less than one-fifth believe it is *very important*. Nearly one-third of the schools think *to develop scientists* is *of little or no importance*. These opinions, of course, are intended to reflect only what the schools think the functions of the elementary school are; and should not be interpreted as reflecting the opinion of schools about the national concern for scientists.

Table B lists the 10 objectives ranked according to the percent of total public elementary schools which rated them *very important*.

Table B.—Objectives of teaching science rated by public elementary schools according to importance and ranked according to percent of schools believing each objective very important: United States, 1961–62

	Very important	Some importance	Little or no importance
1. Help children develop their curiosity and ask what, how, and why questions	87.0	12.0	1.0
2. Help children learn [how] to think critically	85.2	14.3	5.0
3. Teach knowledge about typical areas of science study such as weather, electricity, plant, animal life, and others	84.3	14.9	0.8
4. Help children learn concepts and ideas for interpreting their environment	84.2	15.5	0.4
5. Develop appreciations for and attitudes about the environment	82.4	17.1	0.5
6. Help children develop problem-solving skills	73.9	24.2	1.9
7. Develop responsibility for the proper use of science knowledge for the betterment of man	69.3	27.7	3.0
8. Prepare for high school science	42.8	45.2	12.1
9. Develop hobbies and leisure-time activities	40.9	50.4	8.7
10. Develop scientists	17.6	51.8	30.6

Place in the Curriculum

Increased national emphasis on science has raised the question of the prevalence of science teaching in the elementary school. Although many States, through legislation or administrative decision, have required the teaching of certain subjects in the elementary school, few have required science. Even so, almost all State departments of education and local curriculum leaders have for many years promoted science teaching, and the number of schools teaching science has clearly been increasing. In spite of this, there has been a general feeling that many elementary schools do not teach science at all. To get a picture of the situation, schools were asked to indicate for every grade what part of a school year they teach science. They were asked to indicate whether science is not taught at all, taught less than a half year, taught only a half year, or taught more than a half year.

Except in kindergarten, the study shows that science is taught over one-half year in three-fourths or more of the schools at every grade level. (See table 9.)

In answer to the frequently asked question, "Do all elementary schools teach science?", it can be reported that science is taught to some extent in most school enrollment groups, in most grades. Notable exceptions are in kindergarten in all school enrollment groups and in grades one through three of the *50 to 399* and *49 and under* enrollment groups. A very small percent of schools say that science is *not taught at all.* About 8 percent of the schools in the *49 and under* group report that they do not teach science in the kindergarten, and about 10 percent do not teach science in the first grade. Of all schools, only 4.5 percent in kindergarten and 4.4 percent in the first grade report that science is *not taught at all.*

The percent of all schools and of schools by enrollment groups that teach science more than a half year increases by grade. For example, in schools of *800 and over*, 83.3 percent teach science more than a half year in kindergarten, 94.1 percent teach science more than a half year in the fourth grade, and 96.9 percent, in the eighth grade. A similar increase is represented in the *49 and under* schools, from 37.2 percent of the schools for kindergarten to 79.1 percent for the eighth grade.

The larger the school enrollment, the larger the percent of schools that teach science more than a half year. In the third grade, for example, the percent varies from 69.6 for schools of *49 and under* to 90.3 for schools of *800 and over.* Figure 3 shows the percent of schools that reported they teach science more than one-half year by grade.

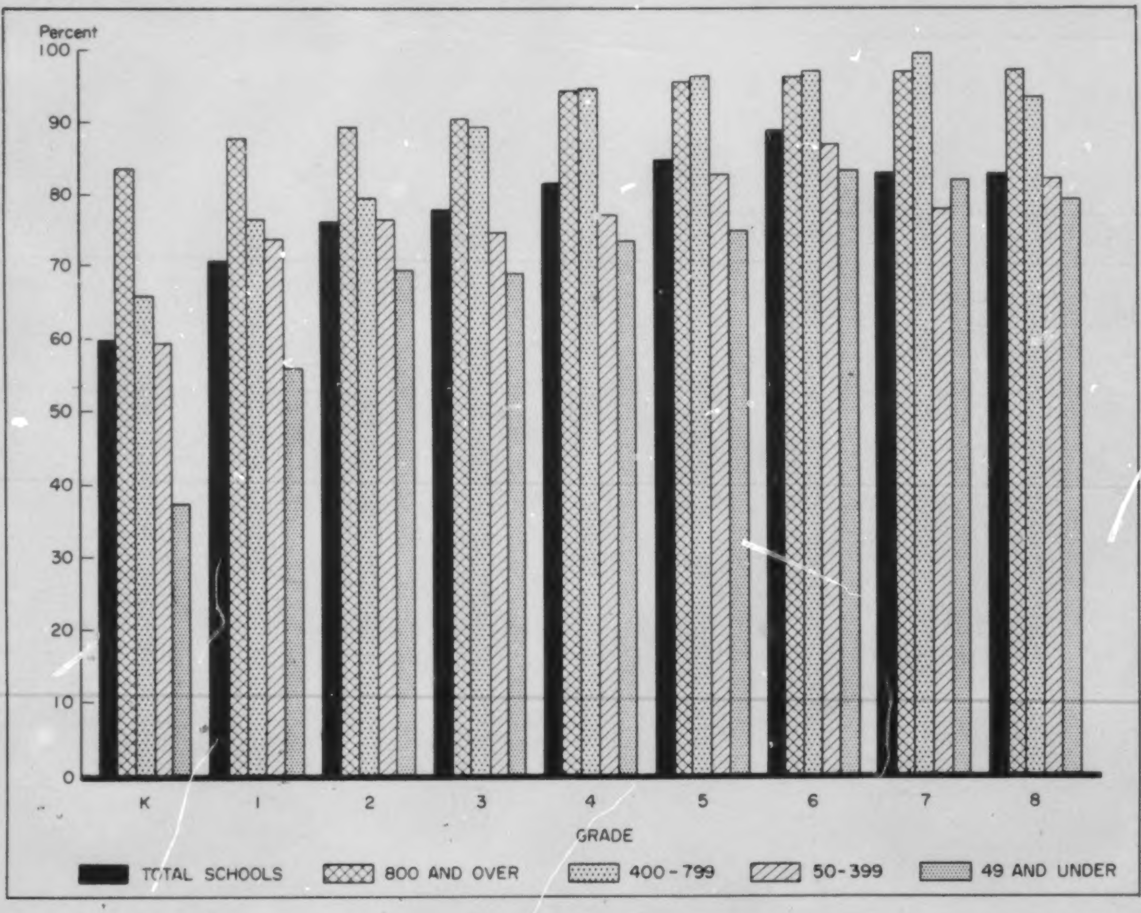
Some schools teach science only one-half year in one or more grades. When the percent of total schools that teach science only half a year is examined, it appears fairly high. However, the high percent of schools in the *49 and under* group together with the percent in the *50 to 399* group in grades three through eight contribute mostly to this percent for total schools.

Teaching Patterns

Science is taught in a variety of ways in the public elementary schools. (See Bibliography, 3, 7, 12, 13, 14, 15, 18.) It may, for example, be taught as a separate subject or it may be integrated with other subjects, particularly social studies. In some schools, it is taught only incidentally. In order to get a more comprehensive picture of the patterns throughout the Nation, the survey requested public elementary schools to indicate the teaching pattern that *most aptly* described the approach used in grades where science is taught by the regular classroom teacher. Thus, schools represented in the analysis of this question for any grade are those not departmentalized for science teaching in that grade.

The percent of schools that teach science as a *separate subject* increases by grade in all enrollment groups up through grade five. (See table 10.) For total schools, this range is from 23.5 percent in kindergarten to 70 percent in grade five. In each enrollment group the percent of schools that teach science as a *separate subject* is less in the sixth grade than in the fifth. In most school enrollment groups, the percent of schools that teach science as a separate subject in grades seven and eight is greater than in grades five and six. In general, the percent of schools that teach science as a *separate subject* increases by grade. In the *400 to 799* group, for example, the range is from 13.0 percent in kindergarten to 88.5 percent in the eighth grade.

FIGURE 3.—Percent of public elementary schools that teach science more than one-half year, by grade: United States, 1961–62



The percent of the *49 and under* schools that teach science as a *separate subject* in the primary grades is unexpectedly high compared to the other school enrollment groups. This is because one State, which had a large number of *49 and under* schools in the sample, by precedent and practice has kindergartens in the rural schools and science is taught in those schools as a *separate subject.* With the data from this State removed from consideration, the percent of *49 and under* and of all schools that teach science in kindergarten as a *separate subject* would be somewhat reduced.

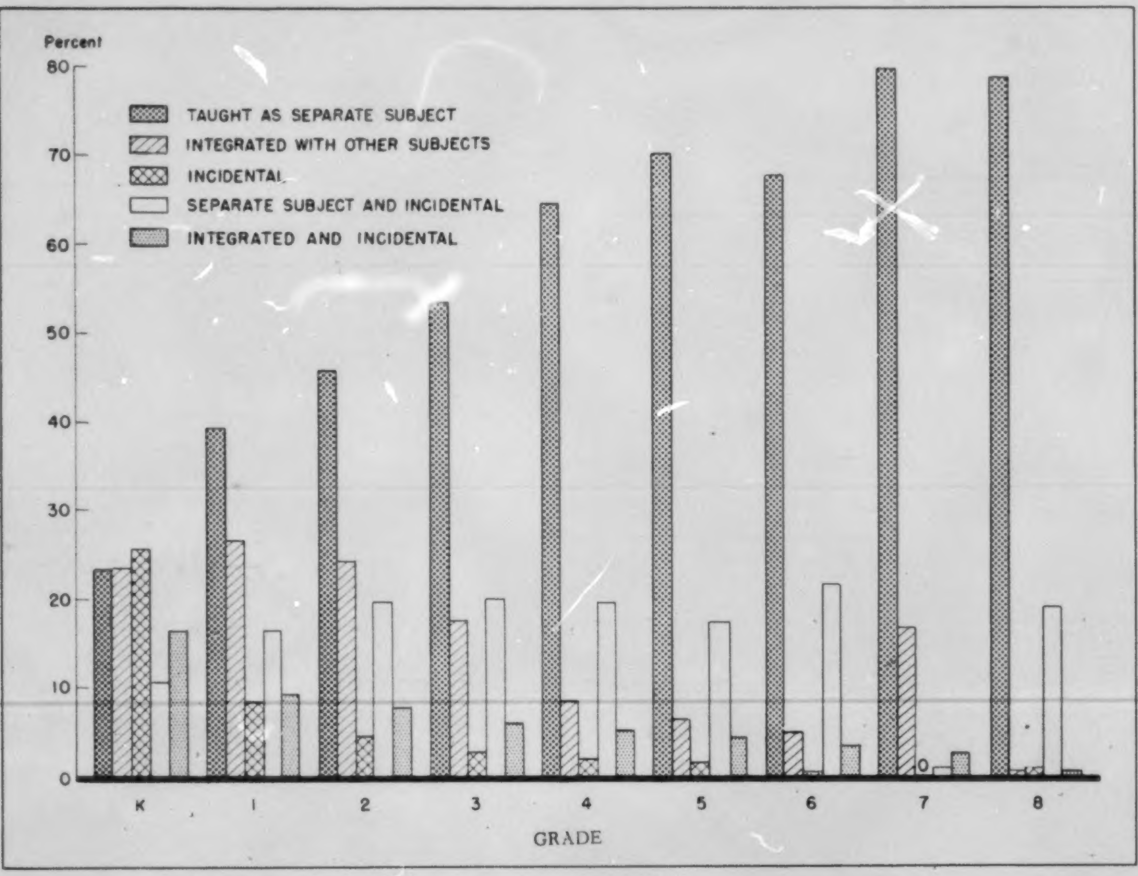
In general, science *taught as a separate subject* and science *taught as a separate subject and incidental* emerge as the patterns that are most common in the upper grades, with the percent of schools teaching science *integrated with other subjects* being highest in the early grades and lowest in the upper grades.

Figure 4 shows the percent of total public elementary schools that teach science by various patterns, by grade.

Time for Science

How often is science taught in each grade? The answer is significant only in relation to the total time science is taught. Consequently, in this study, information was sought on the number of periods as well as the total number of minutes per week science is taught in each grade. There are public elementary schools that as a policy

FIGURE 4.—Percent of public elementary schools that teach science by various patterns, by grade: United States, 1961–62



teach science one, two, three, four, and five periods per week. (See table 11.) The length of the periods is not indicated. Most commonly schools teach science two, three, or five periods per week. In kindergarten and grades one and two, the smallest percent of schools teach science four periods per week. In grades three through eight, the smallest percent of schools teach science one period per week. The percent of schools that teach science one or four periods per week is relatively small, though there are a few exceptions to this in certain grades for selected school enrollment groups.

The percent of schools teaching science five periods per week increases in the upper grades. The mean number of periods per week increases from 3.2 in the kindergarten to 4.1 in the seventh and eighth grades.

The total time science is taught each week is perhaps a better measure than the number of periods it is taught. Table 13 gives the mean, median, and mode number of minutes science is taught per week by grade and by school enrollment group. Almost without exception in every school enrollment group, the median number of minutes of science per week increases by grade up to grade seven. The time for science is not significantly different in grades seven and eight. There is a very substantial jump in mean from the sixth to the seventh grades in most enrollment groups amounting to about an hour a week. This jump is not reflected as much in the *total schools* column because of the influence of the *49 and under* data. In these small schools there is actually no more time devoted to science in the seventh and eighth grades than in the intermediate grades.

747-300 O - 63 - 2

Since the median time of science instruction in the *49 and under* enrollment group varies little by grade and since it varies considerably from that in other school enrollment groups, this group needs to be considered separately. The median time for kindergarten in the *49 and under* group is 50.3 minutes and for the eighth grade, 59.5 minutes, an increase of about 9 minutes per week. However, the increase in the median from kindergarten to the eighth grade in each of the other school enrollment groups is greater, and in the *400 to 799* group is as much as 170 minutes.

Children do get more minutes of instruction as they advance in grade in the public elementary schools. This is true even in the *49 and under* schools, but the increase from grade to grade in these schools is very slight.

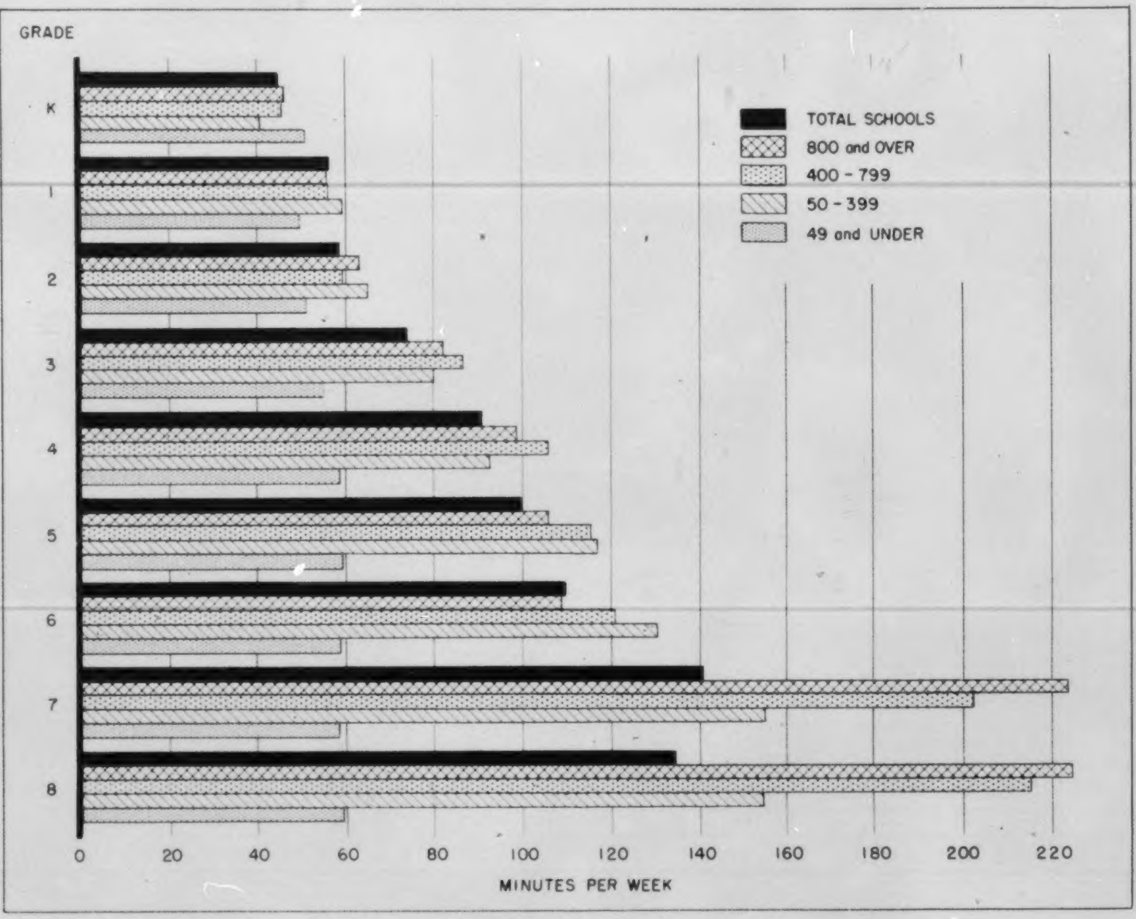
Figure 5 shows the median number of minutes of science instruction per week by grade for each school enrollment group.

The mean, median, and mode distributions of minutes of instruction per week shown in table 13 tend to obscure more detailed information. Therefore, a further analysis has been made to show the percent of schools that teach science in each of fourteen 20-minute intervals. (See table 14.)

A small but significant percent of *all schools* teach science less than 20 minutes a week at almost every grade level. The schools that contribute to this percentage in the upper grades, however, are largely in the *49 and under* enrollment group.

If science is taught an average of 40 minutes each school day, the total is 200 minutes per week. In the lower grades the percent of schools that teach

FIGURE 5.—Median number of minutes of science instruction per week, by grade, in public elementary schools in each school enrollment group: United States, 1961–62

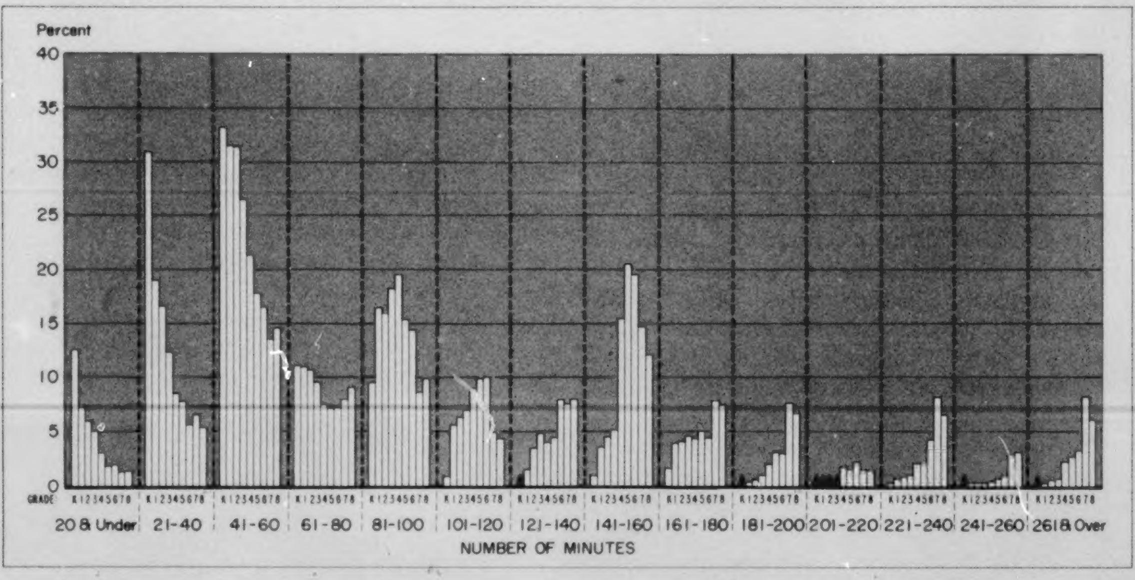


science as much as 200 minutes is low. The percent increases by grade for almost every school enrollment group, with a substantial percent of schools teaching science more than 200 minutes in the fifth, sixth, seventh, and eighth grades.

Also, a small percent of schools in most school enrollment and administrative unit enrollment groups teach science in the seventh and eighth grades more than 261 minutes per week—an average of over 50 minutes per day. Specific information about time for science in particular grades by school enrollment or administrative unit enrollment groups is presented in table 14.

Figure 6 shows the percent of public elementary schools by the number of minutes per week (in 20-minute intervals from *20 and under* to *261 and over*) in which science is taught in kindergarten and grades one to eight.

FIGURE 6.—Percent distribution of public elementary schools by number of minutes per week science is taught in kindergarten and grades one to eight: United States, 1961–62



Departmentalization

There is a considerable amount of discussion and experimentation regarding organization for instruction in the elementary school. Dean (8) in writing about organization for instruction points out that in essence two points of view emerge:

1. Because of the increasing accumulation and importance of modern knowledge, it is no longer possible for the traditionally trained elementary school teacher to be capable of teaching all subjects to all children with equal skill and effectiveness.
2. The advancing science of human growth and development indicates that it is more important for a child of elementary school age to have a close contact with a single teacher who will be in a position to understand him and to provide for his individual differences in ability, maturation, and potential.

Each point of view is strongly held by many persons with reference to teaching science. In order to get a basis for determining trends on this matter, the schools were asked whether they were departmentalized for teaching science at any grade level. Departmentalization for science instruction is interpreted to mean that the school provides a special teacher of science and that the general classroom teacher is not responsible for teaching science.

By far the largest percent of schools are not departmentalized, though the larger the schools, the more prevalent is departmentalization. (See table 7.) Over one-third of the *800 and over* schools are departmentalized at some level, whereas a negligible percent of the *49 and under* are so organized. In general, the larger the administrative unit enrollment, the greater the percent of schools departmentalized. Of *all schools*, about 15 percent are departmentalized for science teaching and 85 percent are not. Table C shows the percent of schools with departmentalization in the various school enrollment groups.

Table C.—Percent of public elementary schools departmentalized for science instruction at some grade level, by school enrollment group: United States, 1961–62

School size	Departmentalized	Not departmentalized
Total schools	**15.1**	**84.9**
800 and over	36.5	63.5
400 to 799	21.8	78.2
50 to 399	18.5	81.5
49 and under	.8	99.2

The schools that were departmentalized at some grade level were asked to indicate the grades. The response is reported in table 12. The percents reported are based only on the 15 percent of *all schools* that are departmentalized for science teaching at some grade level. For example, 46 percent of the schools are departmentalized at the sixth-grade level. This means that 46 percent of the 15 percent which are departmentalized at some grade level are departmentalized in the sixth grade. Only 0.8 percent of the *49 and under* schools are departmentalized (see table 7); however, 100 percent of the eighth grades in these schools are departmentalized. (See table 12.)

The percent of schools departmentalized for science teaching increases from the lower grades up to the seventh grade in each school enrollment group.

Relation to Health and Conservation

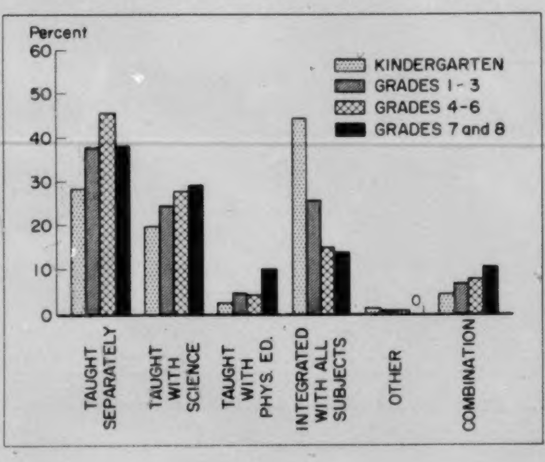
How Health Is Taught

Educators generally agree that health education is too important to be left to chance (10, 22). But whether health education should be a part of science education or not has been a concern of both health and science educators. In this study an attempt was made to find out more about the subject areas in which health is taught. The schools were asked to indicate for each grade level whether health is *primarily* taught separately, taught with science, taught with physical education, integrated with all subjects, or taught in some other way. The results are reported in table 20.

The largest percent of all schools teach health *separately* in all grade groups except kindergarten. In kindergarten, the largest percent of schools teach health *integrated with all subjects*. In approximately one-fourth of the schools at every grade level except kindergarten, health is *taught with science*. Health is *taught with physical education* in a relatively small percent of schools at every grade level. The percent of schools that teach health *integrated with all subjects* decreases for all schools, from 44.2 percent in kindergarten to 13.3 percent in grades seven and eight. The decrease from lower grade levels to upper grade levels is characteristic of every school enrollment group.

The schools were asked to mark only one response to indicate the primary method used to teach health. Many schools, however, checked two or more of the methods. To show these responses a combination category was established. Thus, schools in the combination category teach health *primarily* in a combination of subjects. From 4.2 percent of all schools in kindergarten to 9.9 percent in grades seven and eight checked two or more of the alternative choices and were, therefore, included in the combination category. Since this category includes only those schools that marked more than one response, it does not necessarily represent the extent of various combinations in the schools. Other schools, in following the instructions, may have made a forced choice of a *primary* method in instances where the overlap in methods was slight though possibly existent. Thus, the extent of combinations in actual

FIGURE 7.—Percent of public elementary schools that teach health in various ways, by grade levels: United States, 1961–62



field situations may vary somewhat from that reported. Figure 7 shows the percent of all elementary schools that teach health in various ways by grade levels.

How Conservation Is Taught

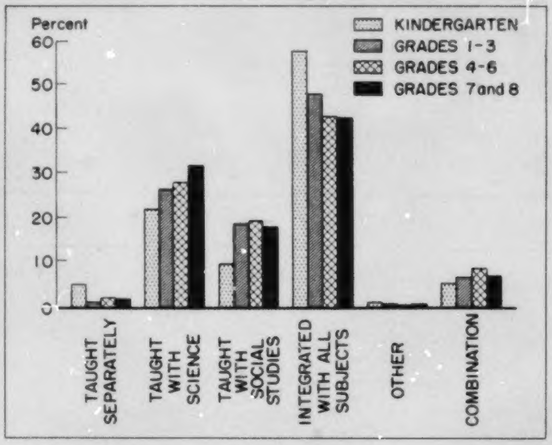
Teaching knowledge and building attitudes about conservation of natural resources are objectives of most elementary schools. Yet, very few schools have a course in conservation as such (1, 2). In the present study, schools were asked to report whether conservation is primarily *taught separately* or *in relation to other subjects.* Table 24 reports the percent of schools that teach conservation in each of several subject matter relationships.

Conservation is *integrated with all subjects* in 46.3 percent of the schools, taught primarily *with science* in 27.2 percent, and *with social studies* in 17.4 percent of the schools. With varying percents, this order holds in every grade level group for *all schools.* A few variations occur in the school enrollment groups. For example, in *grades seven and eight* of the *800 and over* schools, conservation is taught primarily *with social studies* in a larger percent of schools than with science. Almost an equal percent of the *49 and under* schools teach conservation primarily with social studies and with science.

Table 24 includes a *combination* category which reports the responses of schools that checked two or more of the possible answers. For example, a school that indicated conservation is both *taught with science* and *taught with social studies* would be counted in the combination category. From over 10 percent to nearly 20 percent of the *800 and over* and the *49 and under* schools teach conservation in some combination, yet not integrated with all subjects.

Figure 8 represents the percent of all elementary schools that teach conservation in various ways by grade levels.

FIGURE 8.—Percent of public elementary schools that teach conservation in various ways, by grade levels: United States, 1961–62



Relation to Social Studies

Some elementary school systems, as a matter of policy or practice, have in the past recommended the teaching of science as a part of the social studies curriculum. Others have had a deliberate policy of teaching science and social studies separately. The nationwide practice on this issue may be changing with the increased national emphasis on science. As a basis for future comparisons, this study inquired into the school policies on relating science and social studies teaching.

It is the policy of 3.6 percent of *all schools* to teach science and social studies together. By far the greatest percent of schools teach science separately but integrated when appropriate. (See table 26.) This policy is reported by 50.4 percent of *all schools.* Approximately one-fourth of the elementary schools (24.8 percent) have a policy that science should be taught separately, and 16.3 percent have no policy.

Personnel for Teaching Science

Teachers of Science in the Elementary School

Historically, science in the elementary school has been taught by the classroom teacher. In this study schools were asked to indicate, for 1961–62, which of the following teaching patterns prevailed:

- **Classroom teacher only**
- **Classroom teacher with help of an elementary science specialist attached to the school staff**
- **Classroom teacher with the help of an elementary science specialist from the central office staff**

- **Special science teachers attached to school staff**
- **Special science teacher attached to the central office staff**
- **Classroom teachers with special competence in science trades classes with other teachers**
- **Television science teacher**

Table 15 reports the findings by grade and by school enrollment groups for all public elementary schools.

Science is taught most frequently, by far, by the classroom teacher with no help from a science specialist. This is true for kindergarten and all grades (one to eight) when *all schools* are considered. However, the percent of schools in which science is taught by a classroom teacher decreases progressively from first grade (86.5 percent) to eighth grade (72.9 percent).[1] An exception to this pattern is found in the *800 and over* and the *400 to 799* school enrollment groups, where a special science teacher attached to the school staff teaches science in the seventh and eighth grades in the largest percent of schools.

Figure 9 represents the percent of all public elementary schools that use various persons to teach science.

A large percent of schools report special science teachers in grades four to eight. However, it is evident that the percents shown in the *total schools* column (see table 15) cover up the great differences between the large and small schools. The *800 and over* schools tend to have special science teachers, whereas the *49 and under* schools do not.

Although a special science teacher does not teach science in a large percent of the smaller schools (see table 15), the classroom teacher, in a substantial percent of schools in all enrollment groups, does have the help of a science specialist. Sometimes the specialist is attached to the school staff, but more often, in grades one to six, the specialist is attached to a central office staff. Approximately 30 percent of the *800 and over* schools report that special science teachers attached to the central office staff are available for helping teachers in kindergarten and grades one to six. The smaller school groups report a smaller percent of science specialists available to help classroom teachers.

Television was reported often as the primary source of science teaching. The use of TV was most common in grades four, five, and six in the *800 and over* and the *400 to 799* school groups. In the *50 to 399* groups, at all grade levels, the use of TV is reported in a small percent of the schools.

In grades four to eight, classroom teachers with special competence in science trade classes with other teachers in every school enrollment group. In grades one to three this practice is negligible. From 1.0 percent of the schools in the fourth grade to 4.6 percent in the seventh grade use teachers in this way.

Availability and Use of Consultant Help in Science

Providing consultant help for elementary teachers is considered one important way of improving science teaching (16, 17). However, the percent of schools that employ elementary science specialists was not known. For that reason, the present status of science consultant help was explored as an aspect of the present study.

Availability of consultants.—Table 16 reports the percent of public elementary schools which have some science consultant help available. Of all schools, 41.8 percent have consultant help. Table 16 also shows that the availability of consultants is greatest in the large schools and smallest in the small schools. Similarly, a greater percent of large administrative units have consultants available than do small administrative units.

Figure 10 shows the percent of public elementary schools with science consultant help available, by enrollment groups and administrative unit enrollment.

Types of consultant help.—As indicated above, 41.8 percent of all public elementary schools have some type of science consultant help available. Those schools with science consultant help available were asked to indicate the types of help. Table 17 reports the results. (*The percents shown in table 17 are based on the number of schools having consultant help, not the total number of public elementary schools.*) Nearly 40 percent of *all schools* with science consultant help available depend on general elementary supervisors for that help. About 15 percent of *all schools* have an

---

[1] The seventh and eighth grades reported in this study are those in the schools organized on the kindergarten to grade eight level, not those in the junior high school or other type of organization. The percent of schools with special science teachers is higher in junior high schools than in those seventh and eighth grades connected with the elementary schools.

FIGURE 9.—Percent of public elementary schools, by grade, using various persons or combinations of persons to teach science: United States, 1961–62

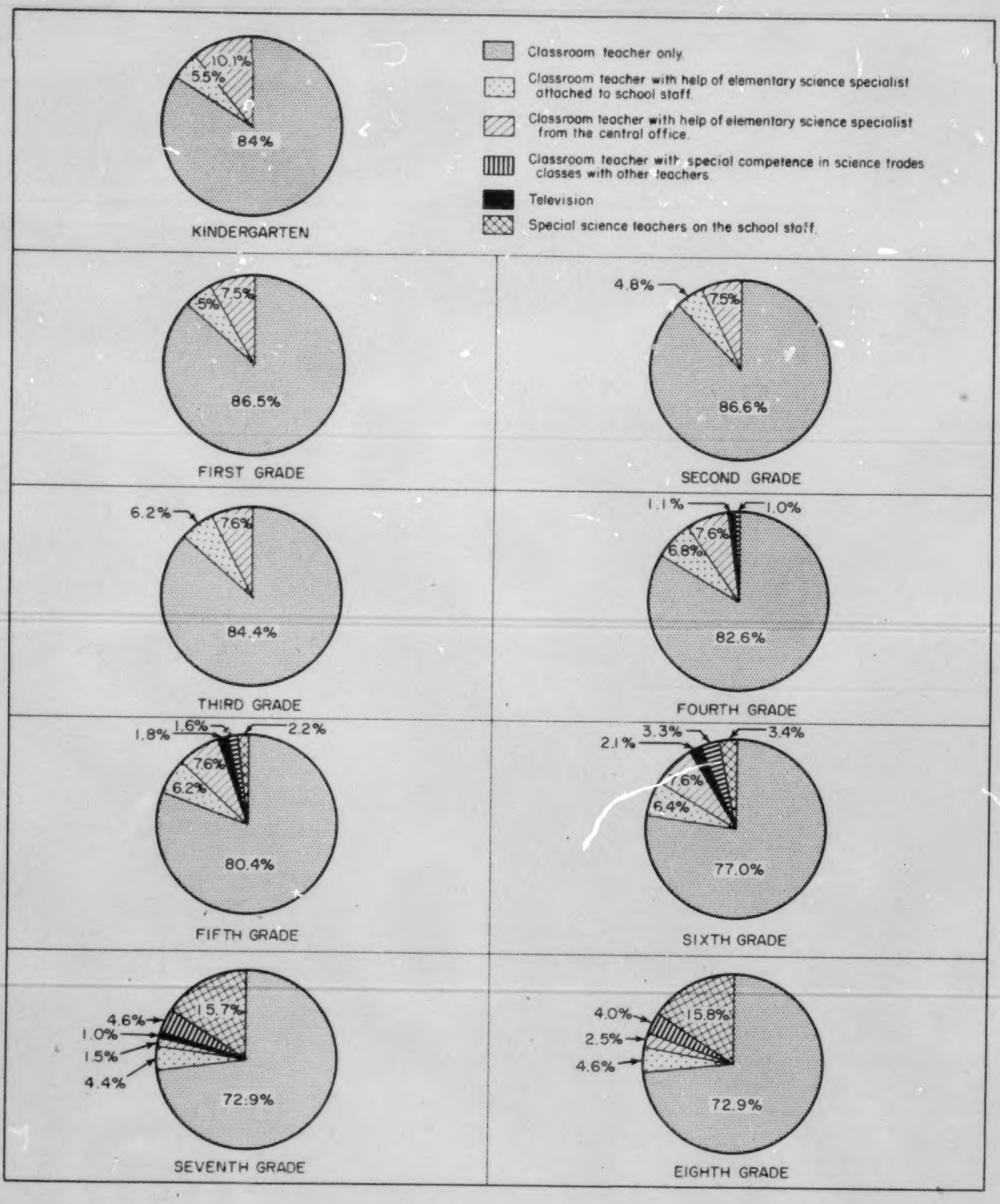
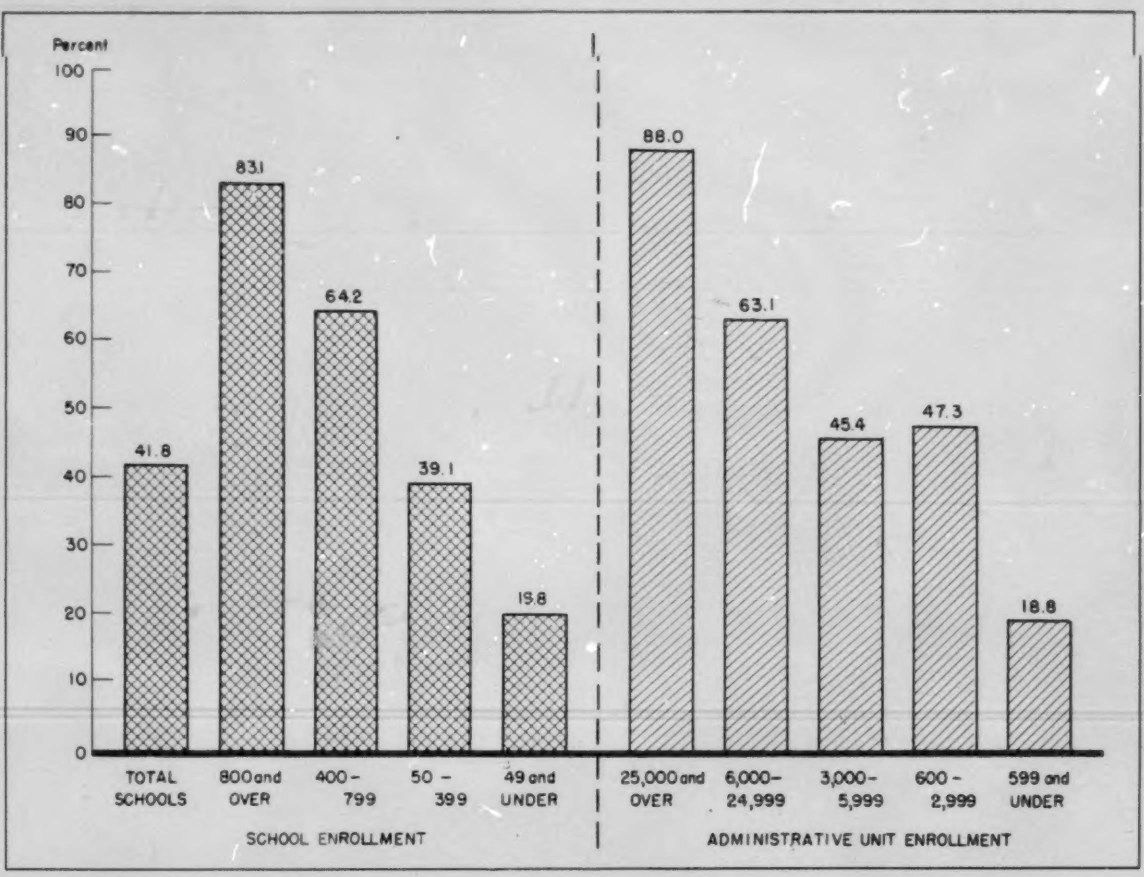


FIGURE 10.—Percent of public elementary schools with science consultant help available, by school enrollment and administrative unit enrollment groups: United States, 1961–62



elementary science consultant, although this varies from 39.4 percent in the *800 and over* schools to 5.6 percent in the *49 and under* schools. High school science teachers are available for science consultant help in 27 percent of *all schools*. The smaller the administrative unit, the larger the percent of elementary schools that look to the high school science teacher for help.

Only a relatively small percent of schools have available a combination of types of consultant help for science, although schools with both a general elementary supervisor and an elementary science consultant, and schools with both elementary science consultants and classroom teachers with special science competence are not uncommon.

In addition to the types of consultant help listed in table 17, schools reported a variety of other sources of consultant help. In fact, 16.3 percent of those schools with consultant help available mentioned individuals or sources not listed in the questionnaire. Some of the types of consultant help listed as "other" were:

- *Program consultant*, a person relieved of classroom duties to provide help in all curriculum areas
- *Members of elementary science committee*, which is a systemwide committee
- *District science coordinator*
- *Vice principal* who is a science teacher
- *Director of science*
- *Television teacher*
- *Full-time teacher assistant* assigned to school due to large school enrollment
- *Curriculum assistant*
- *County science consultant* on special call
- *Special teachers* within the district

- ***Audiovisual director***
- ***High school supervisor***

Frequency of use of consultants.—Less than half the public elementary schools have science consultant help available. (See table 16.) The help may be available from general elementary supervisors competent in science, elementary science consultants, a classroom teacher with science competence, a high school science teacher, or some combination of these.

The schools that have consultants were asked to consider all the types of science consultant help available and to indicate by grade levels how frequently teachers make use of this help. (*Very often* was defined as at least once a week, *occasionally* as about once a month, and *rarely or never* as less than once a month.)

A very broad generalization based on the response (see table 18) is that about 50 percent of those schools with consultant help available use the help *very often* or *occasionally* in kindergarten through grade three, and roughly 60 percent *very often* and *occasionally* in grades four to six and grades seven and eight. About 50 percent of the schools *rarely or never* use the available consultants in kindergarten through grade three, whereas about 40 percent do not use them in the upper grade groups. (The above data, it must be emphasized, pertain only to the approximately 40 percent of all public elementary schools that have consultant help available.)

Although a very much larger percent of *800 and over* schools have consultants than do the smaller schools (see table 16), the frequency of use by schools of all sizes is surprisingly uniform at any grade level. In other words, though a smaller percent of smaller schools have consultants, they make use of them with frequencies comparable to the larger schools. (See table 18.)

How consultants are used.—An attempt was made to discover how and to what extent schools use the available consultants or supervisors. The schools were asked to indicate the extent of use of nine ways consultants commonly work in schools. The results are reported in table 19, parts A to I.

An overview of the ways consultants are used may be seen by ranking them from high to low for all grades in all schools, after combining the percents for *very often* and *occasionally*. For example, 14.5 percent of all grade groups in *all schools* use consultants *very often* for planning or consulting, and 48.4 percent use them *occasionally* in this way. The total for *very often* and *occasionally* is thus 62.9 percent. The rank order of use of consultants is as follows:

Providing materials	72.6
Planning or consulting with teachers	62.9
Organizing or directing workshops for teachers	43.7
Evaluating science teaching	39.1
Demonstrating how to teach before groups of teachers	34.0
Helping plan field trips	29.7
Teaching a science lesson within the classroom	28.2
Working with small groups of children	22.5
Introducing science units	20.4

Table 19–H shows that about 14 percent of the schools use their consultants *very often* and *occasionally* to organize or direct workshops when all grades are considered, but only 31 percent of these schools use consultants in this way in grades seven and eight. This finding is consistent with the finding that a relatively large percent of schools that are departmentalized for science teaching are so organized in grades seven and eight. It may be deduced that special science teachers in grades seven and eight do not so frequently require the services of consultants in organizing and directing workshops as do the lower grade groups which do not so frequently have special science teachers.

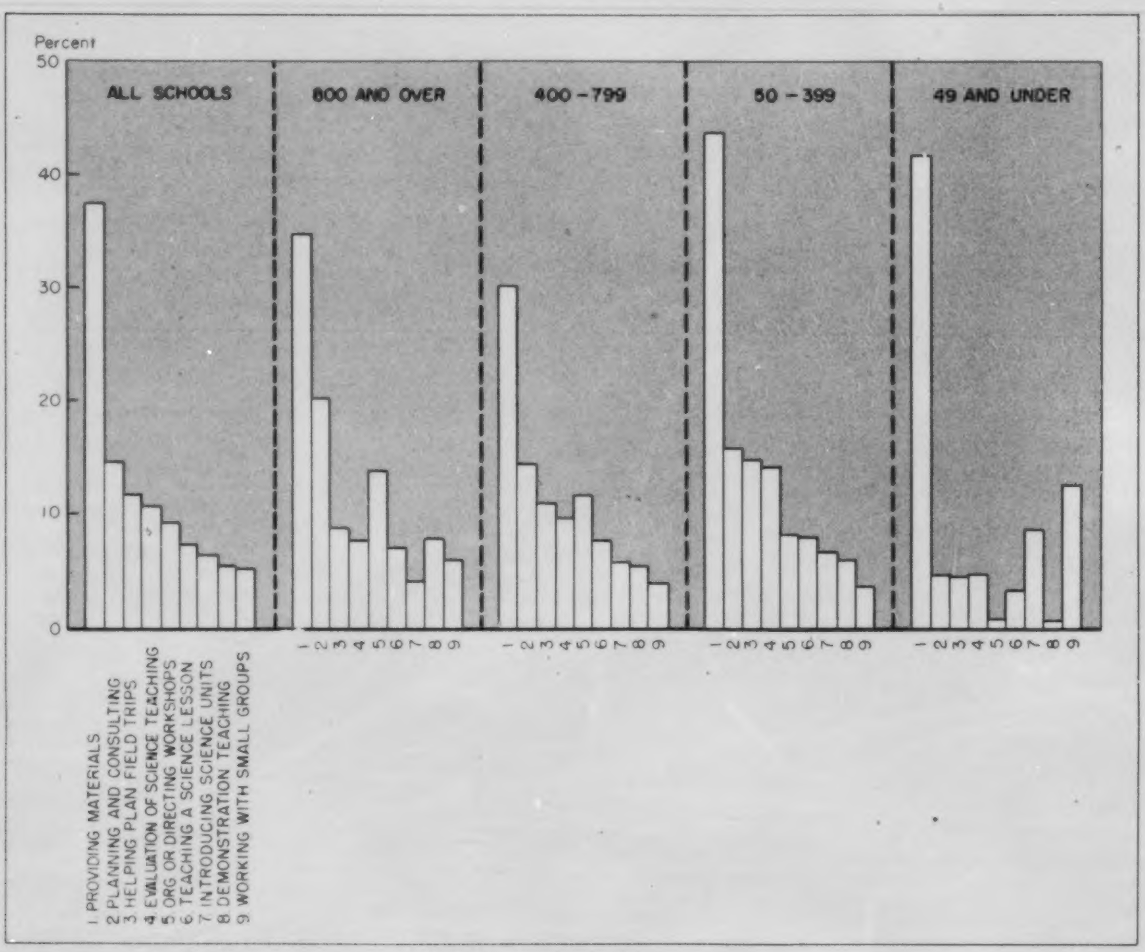
Figure 11 shows nine ways consultants are used *very often* ranked within school enrollment groups. A relatively large percent of schools say they *rarely or never* use consultants in the ways listed. This is true, in general, for all grade level groups. (See table 19.)

Resources

Sources of Content in Science

School systems usually have available several sources of suggestions of "what to study" in science. Typically, these are courses of study, curriculum guides, or textbooks. The courses of study or curriculum guides may be prepared by the State, the local administrative unit, or, in some instances, the individual elementary school. In some schools it is a matter of policy to follow one or more of these guides. In many

FIGURE 11.—Ways consultants are used very often in teaching science, ranked within school enrollment groups: United States, 1961–62



schools the textbook is the chief guide; in others, the teacher may plan the course and refer only indirectly or not at all to the suggested guides for ideas of sequence and continuity.

In order to get a picture of the use of these various curriculum sources, the schools in this study were asked to indicate the frequency of use, by grade groups, of (1) State guides or courses of study, (2) administrative unit guides, (3) local school guides, (4) textbooks, and (5) the teacher's own ideas. The findings are reported in table 21–A to E.

Schools were also asked to indicate whether they use the source *very often*, *occasionally*, or *rarely or never*. If schools checked a source *rarely or never*, it may be that they had the source but did not use it, or they did not have the source.

Use of State guides or courses of study.—Table 21–A reports on the use of State guides or courses of study. When *all schools* are considered, there is a slight increase by grade level in the percent of schools that use a State guide *very often*. Well over one-third of the schools use the State guide *very often* for grades seven and eight, compared to about one-fourth who use it *very often* in grades one to three.

Most States are concerned about the extent of use of State guides in different kinds of schools. This study shows clearly that well over 50 percent of the *800 and over* schools use State guides *rarely* *or never*. Conversely, the *49 and under* schools use the guides *very often* in nearly 50 percent of the schools. Schools in the smallest administrative units likewise tend to use State guides more than schools in the large administrative units. (See table 21–A.)

Administrative unit guide or course of study.—The larger the administrative unit enrollments of schools, the greater the percent of schools that use science guides developed by the administrative unit *very often*. (See table 21–B.) Well over 50 percent of the *25,000 and over* school districts, at every grade group level, use an administrative unit science guide *very often*, compared to 10 percent or less in the *599 and under* administrative units. An examination of the *rarely or never* response tells the story even more vividly, for about one-fourth of the schools use the guide *rarely or never* in the large school systems, compared to three-fourths of the smallest school systems.

Similarly, the largest schools tend to use a guide produced by the administrative unit far more often than do the small schools.

Again, it must be remembered that one reason schools may report they *rarely or never* use the guide is because it is not available. It must be assumed that the unavailability of such a guide is an important consideration in both the small schools and small school systems.

Local school guide.—Individual elementary schools, under the direction of a principal or a supervisor, may develop a science guide or course of study. Such guides may be highly original or adaptations of other available guides. In this study schools were asked to indicate the frequency of use of local school guides. The results are reported in table 21–C.

Clearly a higher percent of the larger schools use a local guide *very often* than do the smaller schools. This is true for every grade group level. Similarly, a larger percent of schools in large administrative units use local guides *very often* than do schools in smaller administrative units.

Again, the relatively high percent of schools *rarely or never* using local school guides may, and probably in part does, indicate that no such guide is available.

Use of science textbooks.—Science textbooks play a key role in determining what content is studied in the elementary school. This conclusion is based on the very high percent of schools that use textbooks *very often*. (See table 21–D.) From 78.1 to 90.7 percent of *all schools* reported that they use textbooks *very often*, except for the kindergarten where children do not usually read or study from textbooks. The percent of schools using textbooks *very often* increased from the lower grades to the upper grades in every school enrollment group and, in general, in every administrative unit enrollment group.

The smallest schools, *49 and under*, use textbooks *very often* as the source of curriculum content more than the larger school enrollment groups do.

Science Teaching Aids

There are literally scores of kinds of resource materials available for teaching in modern schools. Some of them are uniquely suited to teaching science; some have general use (6, 19). In this study the extent of use of 16 selected teaching aids was investigated. Among them, for example, were science textbooks, library books, filmstrips, and museums. Schools were asked to check each teaching aid on a three-point scale: *used very often*, *used occasionally*, and *used rarely or never*.

Except in kindergarten, where picture collections head the list, the highest percent of schools use textbooks *very often* more than any other aid in each grade grouping. (See table 23–A to P.) In all grade groupings, including kindergarten, library books are used *very often* by the second highest percent of schools. The rank order of each teaching aid on the basis of percent of schools using it *very often* is given for each grade group in table D. Museums and speakers are at the bottom of the list for each grade group.

Although materials for science experiments and teacher demonstrations are limited in the elementary schools (see table 30), they are ranked high in every grade level group when frequency of use is considered.

Since the overview by rank order shown in table D obscures some of the significant data regarding the individual teaching aids, a few of them will be considered individually more in detail.

Science textbooks.—Of the 16 teaching aids studied, the science textbook is used *very often* more than any other. Three-fourths of all schools use science textbooks *very often* in grades one through three, whereas over nine-tenths of the schools use textbooks *very often* in grades four

Table D.—Science teaching aids ranked, by grade level, according to the percent of public elementary schools using them very often: United States, 1961–62

Grade level and teaching aid	Percent	Grade level and teaching aid	Percent
Kindergarten		*Grades four to six*	
Picture collections	35.0	Science textbooks	92.1
Library books	33.5	Library books	46.3
Science textbooks	28.1	Science experiments	36.7
Excursions on school grounds	27.5	Filmstrips	31.7
Teacher demonstrations	25.1	Teacher demonstrations	30.0
Filmstrips	21.3	Picture collections	28.8
Science experiments	19.6	Moving pictures	25.6
Moving pictures	18.6	Television	11.7
Phonograph records	13.1	Excursions on school grounds	11.3
Excursions beyond school grounds	8.6	Workbooks	9.7
Workbooks	6.7	Excursions beyond school grounds	8.5
Television	4.6	Records	6.7
Lantern slides	3.8	Lantern slides	5.4
Radio	3.4	Radio	5.0
Museums	2.0	Museums	3.8
Speakers	.9	Speakers	1.9
Grades one to three		*Grades seven and eight*	
Science textbooks	73.9	Science textbooks	95.6
Library books	41.5	Library books	45.4
Filmstrips	28.5	Teacher demonstrations	33.8
Picture collections	28.3	Science experiments	33.1
Science experiments	27.6	Filmstrips	26.6
Teacher demonstrations	24.2	Picture collections	20.0
Moving pictures	22.5	Workbooks	18.3
Excursions on school grounds	15.8	Moving pictures	15.2
Workbooks	9.2	Excursions on school grounds	10.1
Television	7.6	Excursions beyond school grounds	6.2
Records	7.6	Television	5.3
Excursions beyond school grounds	6.6	Records	5.2
Radio	4.9	Radio	4.9
Slides	4.9	Lantern slides	3.0
Museums	2.5	Museums	1.1
Speakers	.9	Speakers	1.0

through six and grades seven and eight. About one-fourth of all schools that have kindergartens use textbooks *very often* in the kindergarten.

(The beginning book in the elementary science textbook series is usually a picture book with very few, if any, words to be read by the children.) Over 57 percent of the schools *rarely or never* use textbooks in the kindergarten.

Except in the *49 and under* schools, where three-fourths report they use textbooks very often in kindergarten, there are no significant differences from one school enrollment group to another.[2] It is clear that more schools use textbooks in the upper than in the lower grades.

Materials for science experiments.—Two distinct major observations are discernable regarding the use of materials for science experiments. (See table 23–B.) First, a higher percent of schools use materials for science experiments *very often* in the upper than in the lower grades. This is true in almost every school enrollment group and every administrative unit enrollment group. Second, a higher percent of schools use science materials for experiments *very often* in the large schools than in the small. Conversely, except in kindergartens, the smaller the school, the higher the percent that use science materials for experiments *rarely or never.* And, similarly, the smaller the administrative unit, the higher the percent of schools that *rarely or never* use materials for science experiments. The dearth of materials in the small schools (see table 30) may be responsible for the relatively high percent of small schools that *rarely or never* use materials in this way.

Motion pictures.—Motion pictures are used *very often* by approximately one-fifth of all schools in all grade groups. (See table 23–D.) However, there is considerable variation from one school enrollment group to another. Nearly one-half of the *800 and over* schools use moving pictures *very often.* The percent increases gradually from kindergarten to grades seven and eight. In contrast, a negligible percent of *49 and under* schools use moving pictures *very often.* In fact, nearly two-thirds report at every grade level group that they *rarely or never* use moving pictures.

Here, as with science equipment, a higher percent of the larger schools and of the larger administrative units report using moving pictures *very often.*

Filmstrips.—Filmstrips are used *very often* by more schools than use moving pictures *very often.* In each grade group except kindergarten, well over one-fourth of all schools use filmstrips *very often.* (See table 23–F.) As with most of the teaching aids, the percent of the largest school enrollment groups that use filmstrips *very often* is greater than the percent of small schools that use them *very often.* About 40 percent of the schools use filmstrips *occasionally* in all grade groups and in all school enrollment and administrative unit groups. Filmstrips appear to be a much used teaching aid in science.

Excursions.—It has long been advocated that field trips and excursions be encouraged as a way for children to get direct experience with natural phenomena in the environment. In this study, the schools were asked to indicate the frequency of use of excursions to and beyond the school grounds.

In the kindergarten, excursions to the school grounds rate high compared with other teaching aids. Excursions beyond the school grounds are, understandably, less common. In grades one through three, four through six, and seven and eight, excursions to the school grounds, though used *very often* by only 10 to 15 percent of the schools, do rank about ninth compared to the other teaching aids listed. (See table D.)

---

[2] There are relatively few kindergartens reported in the *49 and under* schools, and where they occur, the kindergarten children are often taught along with the other primary grade children.

In view of the presumed accessibility of the out-of-doors and of growing things around small schools and in small school districts, it is surprising that the small schools and the schools in small administrative units do not use excursions to the school grounds appreciably more than the larger schools. In several categories a smaller percent of small schools use excursions than do the larger schools. (See table 23–G.)

Excursions beyond the school grounds are used *very often* by a smaller percent of schools than excursions to the school grounds. Though roughly 40 percent of the schools use excursions beyond the school grounds *occasionally*, a larger percent *rarely or never* use excursions beyond the school grounds. (See table 23–H.)

Library books.—Library books stand high on the list of science teaching aids. In every grade group, except kindergarten, they are next to science textbooks in terms of the percent of schools that use them *very often*. A slightly higher percent of schools use picture collections in kindergartens than use library books.

From 50 to 70 percent of the *800 and over* and the *400 to 799* schools use library books *very often* at every grade level except kindergarten. Well over 35 percent of the *50 to 399* and the *49 and under* schools use library books *very often* in all grade groups except kindergarten.

Again, as with several of the other teaching aids, a relatively low percent of schools in the *599 and under* administrative unit groups, compared to the other four administrative groups, use library books *very often*. (See table 23–K.)

The fact that a very substantial percent of schools in every enrollment group and every administrative unit *rarely or never* use library books is a challenge to those who believe library books play an important part in the science education of children.

Television.—Television is relatively new in the repertoire of teaching aids available to teachers, and the schools were asked to indicate the frequency of use of this medium. The study shows that less than 5 percent of *all schools* use it *very often* in *kindergarten*, about 8 percent in *grades one to three*, 12 percent in *grades four to six*, and 5 percent in *grades seven and eight*. (See table 23–M.) The data for all schools, however, obscure some very significant differences among schools of the various school and administrative unit enrollment groups. For example, about 25 percent of the *800 and over* schools use television *very often* at every grade level as contrasted to less than two percent of the *49 and under* schools. Similarly, over 30 percent of the largest administrative units use television *very often* in every grade level except kindergarten, whereas about 1 percent of the *599 and under* administrative units use television at every grade level.

A very large percent of *all schools* in every enrollment and administrative unit group use television *rarely or never*. The data in table 23–M give further details on the use of this medium.

Specific data about additional science teaching aids, such as workbooks, radios, museums, and speakers, may be found in table 23.

Science Textbook Adoption Practices

There are well over a dozen commercial textbooks of science for the elementary school. Most of these are suitable for use from kindergarten through grade eight. Some school systems adopt one series for the basic program; others adopt a multiple list from which a specific school may select one or more books.

Schools were asked to indicate their policy with regard to the adoption of science textbooks. The data are analyzed by grade groups. (See table 25.) About 18 percent of *all schools* do not adopt a science textbook for grades one to three. This percent drops to less than 5 percent for grade groups four to six and seven and eight. In grades one to three, nearly 60 percent of *all schools* adopt a single science textbook. This percent is greater in grades four to six and seven and eight. Approximately one-fourth of *all schools* adopt two or more science textbooks at every grade group level.

The *49 and under* schools more commonly adopt a single textbook than do the larger schools.

Schools in the *25,000 and over* administrative unit group are markedly different from the other four administrative unit groups of schools in the matter of textbook adoption. At every grade group level over 50 percent of the schools in the largest administrative units adopt two or more science textbooks and about one-third of them adopt a single textbook. By contrast, less than 30 percent of the smaller administrative units adopt two or more textbooks, and from 50 to 80 percent of the schools adopt a single textbook. The reasons for this difference may lie in the financial support of the largest school systems, the availability of facilities in general, or the basic philosophy of the administrations. Whatever the reason, the largest school systems seem less dependent on single science textbooks than the smaller ones.

Average Class Size and Selected Teaching Aids

A study was made of the frequency of use of five teaching aids in relation to average class size. For example, do schools with the largest average class size use textbooks more or less often than schools of small average class size? Table 22–A gives the results by grade level groups and average class size. In grades one to three, about 80 percent of the schools with average class size of *19 pupils and under* and about 52 percent with average class size of *35 and over* use textbooks *very often*. In grades four to six a greater percent of schools with smaller class size likewise use textbooks *very often* than schools with a large average class size. This relationship is reversed in grades seven and eight, where a smaller percent of schools with average class sizes of *19 and under* and *20 to 24* use textbooks *very often* than do the schools with average class size of *35 and over.*

Table 22–B shows that the larger the average class size up to *30 to 34 pupils*, the higher the percent of schools that use materials for science experiments *very often*. The schools with the largest average class size, *35 pupils and over*, use materials less than do those with classes from *20 to 34 pupils*, but the percent is substantially higher than for the schools with average class sizes of *19 pupils and under.*

These data indicate that other factors besides average class size influence the frequency of use of materials for science experiments.

This conclusion seems to hold also for excursions beyond the school grounds. (See table 22–C.) No clear relationship exists between average class size and the percent of schools that sponsor excursions beyond the school grounds.

The percent of schools using library or supplementary books *very often* in the grade group *1 to 3* ranges from 35 percent in schools with average class size of *19 pupils and under* to 51 percent in those with an average class size of *30 to 34 pupils*, and down to 39 percent in schools with *35 pupils and over.* (See table 22–C.) In the grade group *4 to 6*, the highest percent of schools that use library books *very often* has an average class size of *25 to 29 pupils;* and in grade group *7 and 8*, *30 to 34 pupils.* The percent of schools using library and supplemental books *very often* drops off (except in grades *4 to 6*) when the average class size is *35 pupils and over.*

In general, those schools with large average class size use TV for science instruction more than do those with small average class size, though there are several exceptions. (See table 22–E.)

Facilities and Equipment

The importance of suitable equipment and supplies in appropriate amounts for teaching science in the elementary school has been emphasized in recent years. Through the National Defense Education Act (25), schools in participating States have been able to augment their science equipment. Many professional books have encouraged school systems to provide the necessary materials for teaching science and have given guidance in the wise use of equipment and supplies (6, 11, 19, and 20).

This study sought information about science facilities, equipment, and supplies through four different approaches: getting the opinion of respondents regarding the adequacy of equipment and supplies; determining to what extent schools feel that the lack of supplies is a barrier to science teaching; obtaining an estimate of the cost per pupil for science teaching; and obtaining a count from schools of the actual number on hand of 42 selected items of science teaching equipment.

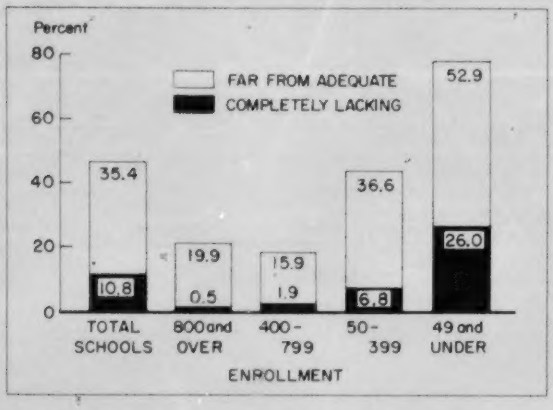
Adequacy of Equipment and Supplies

The schools were asked to indicate whether the equipment and supplies were *very plentiful*, *generally adequate*, *far from adequate*, or *completely lacking.* Table 27 shows several significant results. Eight percent of *all schools* indicated that the availability of equipment and supplies was *very plentiful*; 46 percent, *generally adequate*; and 46 percent responded in the combined categories, *far from adequate* and *completely lacking*.

The differences between school enrollment groups are most striking. The smaller the school, the less adequate is the availability of equipment and supplies. Over one-fourth (26 percent) of the *49 and under* schools compared to less than 1 percent of the *800 and over* schools, for example, report that equipment and supplies are *completely lacking*.

Figure 12 highlights the differences in schools by enrollment groups when the responses for *far from adequate* and *completely lacking* are combined.

FIGURE 12.—Percent of public elementary schools indicating science equipment and supplies far from adequate and completely lacking: United States, 1961–62



Nearly three-fourths of the schools in the *599 and under* administrative units report that equipment and supplies are either *far from adequate* or *completely lacking*. Only a small percent of the four largest administrative unit enrollment groups report that equipment and supplies are *completely lacking*. Over half of these groups report that equipment and supplies are *generally adequate*.

Lack of Supplies as a Barrier

Schools were asked to indicate the extent of difficulty of several barriers to science teaching, including *lack of supplies*. (See table 37.) Of 13 barriers, *lack of supplies* was ranked second as offering *great difficulty*. The *49 and under* school group and the *599 and under* administrative unit enrollment group stood apart from the other groups in the high percent of schools that indicated *lack of supplies* as offering *great difficulty*.

The larger schools, as a group, report *lack of supplies* as offering *great difficulty* in a much smaller percent of cases than the smaller schools.

Science Equipment and Supplies Related to Average Class Size

Do schools with very large average class sizes report that science equipment and supplies are not adequate, and, conversely, do schools with small average class size consider that their equipment and supplies are plentiful? The data (see table 28) show that the greater percent of schools with average class sizes of *over 25 pupils* believed their supplies and equipment were *quite plentiful*, while the greater percent of schools of *24 and under pupils* believed the supplies and equipment were *far from adequate* or *completely lacking*. In general, the small schools do not seem to have the supplies and equipment to meet their needs even though their average class size is small.

Improvised Apparatus and Equipment

There has been a tradition in elementary school science classes to use "cheap and inexpensive" materials and supplies or "improvised equipment." Teachers have often been asked to teach science but have not been supplied with basic equipment. That this scarcity prevails is reflected in table 27 which reports that over 46 percent of the schools feel science equipment and supplies are either *far from adequate* or *completely lacking*.

To what extent, then, do schools use improvised materials in teaching science? Schools were asked to indicate whether they improvise equipment *very often*, *occasionally*, or *rarely or never*.

In general, a higher percent of large schools than of small schools improvise *very often*. (See table 31.) A larger percent of *all schools* in *grades four to six* than in *grades one to three very often* tend to improvise. Less than 7 percent of the schools say they *rarely or never* improvise in *grades four to eight*.

Science Equipment and Apparatus

The equipment and apparatus requirements of a particular school depend on the curriculum (19). It is not feasible to develop a standardized list of items which every school would be expected to have in any given quantity to support equally effective science programs. Nevertheless, science equipment and apparatus are needed for teaching science, and in this study an attempt was made to assess the actual numbers of selected items of science equipment found in elementary schools (6).

Forty-two selected items were listed, ranging from the very simple and common to the expensive or unusual ones, and schools were asked to tell how many of each item were available for use in the school. The list was not inclusive nor was it presented as a model list. It did, however, contain items which curriculum guides and elementary science books frequently mention. The list may be examined in questionnaire item 21 or in table 30.

Table 30 reports the mean, median, and mode number of each of the 42 items by school enrollment and administrative unit groups.

As would be expected the *800 and over* schools have a larger mean number of items than the smaller schools, and the *49 and under* schools have the fewest mean number of most (though not all) items.

Perhaps the most arresting observation is that the mode number for almost every item is zero. Specifically, the only items for which zero was not the mode were compasses, horseshoe magnets, mineral and rock collections, reading glasses, and thermometers. In no instance, for any item listed, was the mode number greater than one.

Almost as striking is the finding that zero or one is also the median number for many items. For example, the median number of aquariums for public elementary schools is one; half of the schools had one or none, and half had one or more aquariums.

The mean number of items in the *800 and over* schools indicates that most items are available in reasonable numbers for a demonstration type program of science teaching, but probably not in large enough numbers to support programs of individual investigations by children. The mean for *all schools* on most items is lowered by the dearth of items in the *50 to 399* and the *49 and under* schools.

The third quartile number of items was calculated, as shown in table E. This analysis gives a better idea of the upper range in the number of items available to schools in the various enrollment groups.

Table E.—The third quartile number of items of science equipment and apparatus for public elementary schools, by school enrollment groups: United States, 1961–62

Item	Total schools	School enrollment groups			
		800 and over	400 to 799	50 to 399	49 and under
Anemometer	0	1	1	0	0
Animal cage	1	2	2	1	0
Aquarium	4	10	7	3	1
Bar magnets	7	13	12	8	1
Barometer, Aneroid	1	2	1	1	0
Barometer, Mercury	1	1	1	1	0
Beakers	10	12	10	12	0
Beam balance	1	1	1	1	0
Compass	3	8	6	3	1
Concave lens	2	5	4	2	0
Convex lens	2	5	4	2	0
Dry cells	4	12	8	4	1
Electric bell	2	6	4	2	1
Electric button	2	6	3	2	0
Flasks	6	12	6	6	0
Garden, school	0	1	0	0	0
Globe	2	12	6	3	1
Heat sources					
Alcohol burner	1	3	2	2	0
Bunsen burner (fixed gas)	0	0	0	0	0
Bunsen burner (portable propane)	1	2	1	1	0
Canned heat	0	0	0	0	0
Gas stove	0	0	0	0	0
Hot plate, electric	1	2	2	1	1
Horseshoe magnet	4	10	6	4	1
Insulated copper wire	2	5	4	3	1
Light bulb	6	12	8	6	2
Meter sticks	2	3	3	3	0
Microscope	2	3	3	2	1
Mineral or rock collection	2	3	2	2	1
Museum case	0	0	0	0	0
Nature trail	0	0	0	0	0
Overhead projector	0	1	0	0	0
Portable lab	1	1	1	1	0
Prism	2	6	4	3	1
Reading glass	3	6	7	2	1
Science kit	1	2	3	1	0
Spring balance	1	2	2	1	0
Test tubes	2	4	3	2	0
Thermometers	6	10	12	6	2
Transformers	1	1	1	1	0
Tripod magnifying glass	1	5	3	2	0
Tuning fork	2	6	3	2	0

In thinking about the number of items of science equipment and apparatus needed by a school, remember that a school of *800 and over* will have as many as 25 classrooms. It is true that *one* of certain items is adequate for a school, yet for certain activities schools may need one item per child. Table E shows that in most school enrollment groups the third quartile number for any item in no way approaches one per classroom, let alone one per child.

Where Science Is Taught

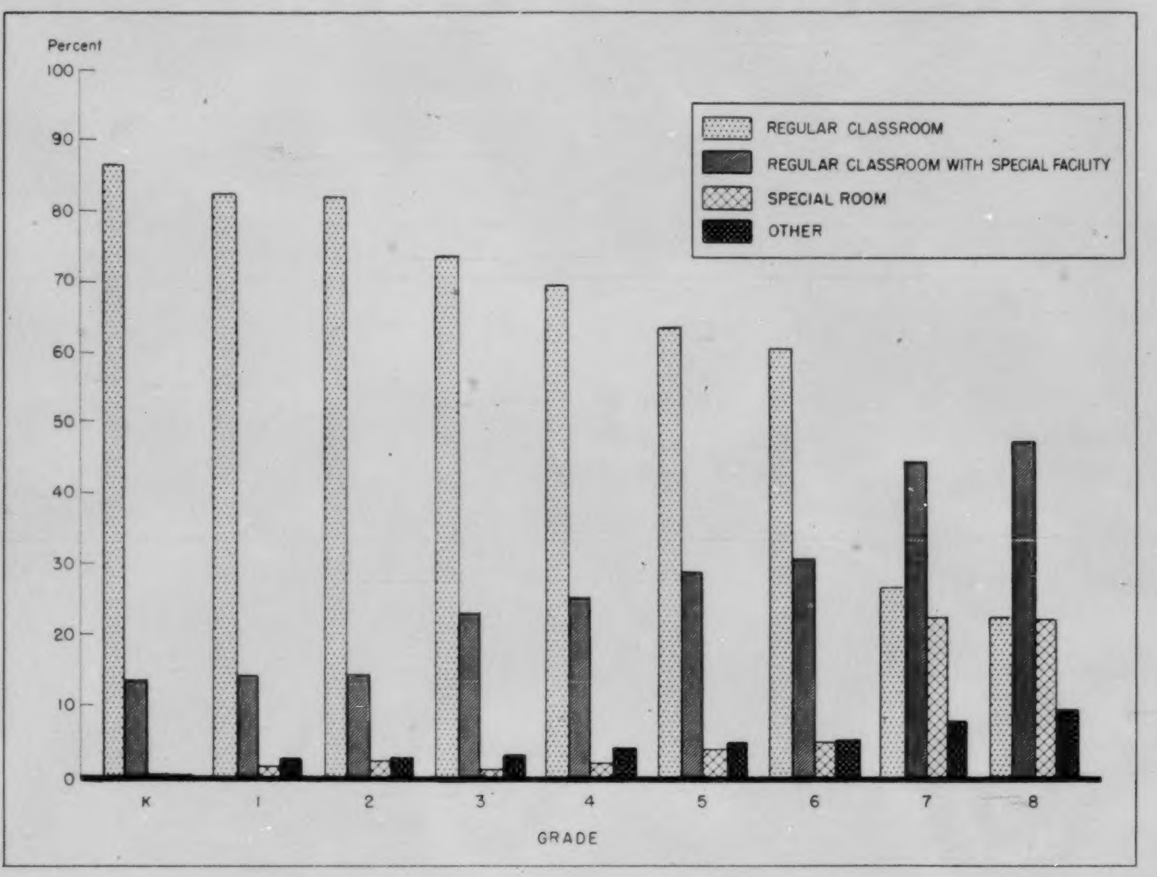
In recent years some elementary schools have planned special rooms for science teaching only to give them up because of the need for additional regular classrooms. Some elementary schools that teach science in a departmentalized organization use special rooms. In other departmentalized schools, the science teacher works in the regular classroom or homeroom. In the past, science taught in a regular classroom was by far the most common practice. To test for a possible trend toward more special rooms, the questionnaire asked the schools to indicate the type of room in which they teach science. The choices were *regular classroom, regular classroom with special facilities, special room*, or *other*.

Nearly 90 percent of *all schools* teach kindergarten science in regular classrooms. (See table 29.) The percent decreases slightly by grade to 71 percent in the seventh grade.

The percent of *800 and over* and *400 to 799* schools that teach science in classrooms with special facilities is significantly higher at every grade level than in the smaller school enrollment groups. Approximately 2 percent of the *49 and under* schools teach science in regular classrooms with special facilities. A very small percent of *all schools* teach science in special rooms in grades kindergarten through four. At the fifth- and sixth-grade levels more schools report special science rooms than in the lower grades, and in *grades 7 and 8*, except in the *49 and under* group, special science rooms are quite common. For example, 26 percent of the *800 and over* schools teach science in special science rooms in grade seven and 31 percent in grade eight.

A somewhat smaller percent of the *400 to 799* and the *50 to 399* schools teach science in special rooms at every grade level; and, as mentioned above, special rooms in the *49 and under* schools are rare indeed.

FIGURE 13.—Percent of public elementary schools that teach science in various types of rooms, by grade, in the 400 to 799 enrollment group: United States, 1961–62



747-300 O - 65 - 3

Nearly half of the 24,567,000 public school children attend schools in the *400 to 799* enrollment groups. (See table 2.) Figure 13 shows the percent of schools in this enrollment group that teach science in various types of rooms, by grade.

Funds for Science

Annual Expenditure Per Pupil

Schools were asked to give an estimate of the expenditure for science equipment and supplies for the school year 1961–62. From the total expenditure of each school and its total enrollment, a per-pupil expenditure was calculated for each school. A mean, median, and mode per-pupil expenditure for each school enrollment and each administrative unit group was then determined. These three measures of central tendency are shown in table 34.

The mean expenditure by school enrollment groups is in the range of 44 to 60 cents per pupil. The mode, however, indicates that the largest percent of schools spend from 11 to 14 cents per pupil. The *49 and under* schools spend as much per pupil as the larger schools. Even so, the total money available for purchase of equipment and supplies in the small schools is inadequate. (See also tables 27 and 28.)

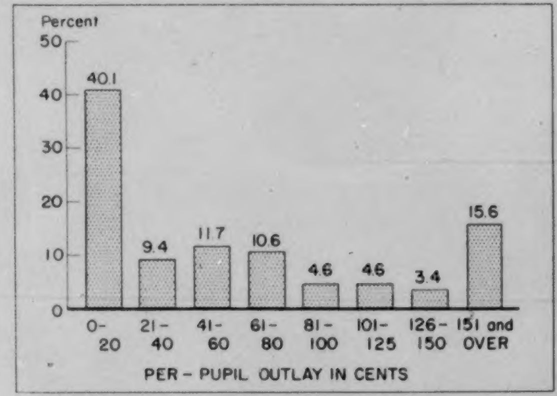
In addition to the mean, median, and mode annual per-pupil outlay, table 34 shows the percent of schools in each of several expenditure categories. Forty percent of *all schools* spend from zero to 20 cents per pupil, whereas 15.6 percent spend over $1.51 per pupil. Figure 14 shows the percent of all public elementary schools by annual per-pupil outlay for science equipment and supplies.

Nearly half of the *49 and under* schools spend from zero to 20 cents annually per pupil, and one-fifth spend over $1.51 per pupil. About 43 percent of the *800 and over* schools spend as little as zero to 20 cents per pupil, and 9.2 percent spend $1.51 and over.

Petty Cash

Teachers of science frequently need materials which have not been provided in the regular periodic supply. Often they buy these unanticipated materials with their own funds, though schools do not encourage this. It is helpful, though not always feasible, for schools to have a petty cash fund for science supplies.

FIGURE 14.—Percent of public elementary schools by annual per-pupil outlay for science equipment and apparatus: United States, 1961–62



In this study, schools were asked to indicate whether or not they had a petty cash fund. About 25 percent of all public elementary schools have such funds. (See table 32.) Thirty-six percent of the *800 and over* schools, compared to 15.1 percent of the *49 and under* schools, have such funds. Thirty-nine percent of the *25,000 and over* administrative units compared to 15.9 percent of the *599 and under* administrative units have petty cash funds.

Nonschool Sources of Funds for Science Equipment and Supplies

Many elementary teachers and principals, out of a sense of commitment, have purchased supplies for their classroom and school with funds "from their own pockets." A few balloons, some chemicals from the drugstore, screen wire from the hardware store, and an occasional microscope from a science supply house are examples of purchases made because someone wanted the children to have a good science experience.

Where adequate school funds are not available, other nonschool sources of funds are sometimes accepted. In this study, schools were asked whether they had access to nonschool sources of funds for science equipment and supplies and, if so, what the sources were. (Nonschool funds refer to funds that did not come from public tax sources.) Tables 35 and 36 report the findings on these questions.

Over 20 percent of *all schools* report access to nonschool sources of funds. (See table 35.) Nonschool funds are more often available to larger than to smaller school systems. Similarly, nonschool funds are more often available to larger than to smaller schools. Over one-third of the *800 and over* enrollment groups have access to nonschool funds compared to only one-tenth of the *49 and under* schools.

Among the 20.4 percent of *all schools* that do have access to nonschool funds for science, parent-teacher associations are the most common source (see table 36). Local businesses contribute in a small percent of the schools, and in isolated cases other sources were children's contributions, teacher's own money, school store, sale of school pictures, men's clubs, and special grants from private foundations.

Barriers and Per-Pupil Outlay

Logically it seemed that there might be some discernible relation between the difficulty of certain barriers (see table 37) and the amount of money spent for science teaching (see table 34). It seemed plausible, for example, that schools which indicated *insufficient funds* as offering *great difficulty* would spend less per pupil than schools in which *insufficient funds* offered *no difficulty*. Or, it seemed possible that schools in which *lack of supplies* offered *no difficulty* as a barrier might spend more per pupil than schools in which *lack of supplies* offered *great difficulty*. To check these and other hypotheses a cross tabulation was made between five selected barriers and the average annual per-pupil expenditure by school enrollment groups. Table 38 gives the results of these cross tabulations.

Lack of supplies and per-pupil outlay.—Where *lack of supplies* is a barrier offering *great difficulty*, the average annual per-pupil outlay of *all schools* is 29 cents. The average per-pupil outlay of schools where *lack of supplies* offered *no difficulty* was 61 cents. Thus, schools that spend more believe that *lack of supplies* offers *no difficulty*. This is true for each school enrollment group. The *49 and under* schools which felt *lack of supplies* offered *no difficulty* spent an average of $5.01 per pupil. This high average annual per-pupil outlay reinforces the observation that small schools must spend more per pupil in order to have adequate science supplies and equipment.

Insufficient funds.—*All schools* that indicated *insufficient funds* as offering *great difficulty* had an average annual per-pupil outlay of 53 cents, and those where funds offered *no difficulty* spent an average of 69 cents. The *800 and over*, the *50 to 399*, and the *49 and under* schools, where *insufficient funds* offered *no difficulty*, spent more than where *insufficient funds* offered *great difficulty*. This is a logical relationship. The $2.70 average annual outlay of the *49 and under* schools where funds offer *no difficulty* indicates again the large per-pupil expenditure necessary for an adequate program.

Teachers' lack of interest.—Schools of every enrollment group that believe *teachers' lack of interest* offers *great difficulty* spend less per pupil than schools where *lack of interest* offers *no difficulty*. Thus, where *teachers' lack of interest* in science teaching is not a barrier, more is spent per pupil. (See table 38.)

Not enough time.—In schools where *not enough time* offers *great difficulty*, less is spent per pupil than in schools where time is not seen as a barrier. (See table 38.)

Lack of inservice opportunities.—Schools of every enrollment group that believe *lack of inservice activities* offers *great difficulty* spend less per pupil than schools where this barrier offers *some difficulty* and (except the *800 and over* schools) *no difficulty*. (See table 38.)

In general, it appears from table 38 that schools which do not have barriers spend more for science equipment and supplies than do schools which have difficult barriers. It may well be because of the larger per-pupil expenditure that the barriers are not present. Or, there may be other unidentified factors within the school which simultaneously stimulate spending and professional upgrading of the science program.

Barriers to Effective Science Teaching

A number of reasons are frequently given to explain why science teaching in the elementary school is sometimes less effective than desired (17). In this study these reasons or conditions are called *barriers*. Schools were asked to indicate the degree of difficulty of 13 so-called barriers to science teaching as a basis for a nationwide assessment of the science teaching problems faced by teachers and schools.

The results are reported in table 37 where the barriers for *all schools* are ranked from 1 to 13 on their mean degree of difficulty. *Lack of adequate consultant service* ranks first and *schools believe other areas more important than science* ranks thirteenth. *Lack of supplies and equipment*, *inadequate room facilities* and *insufficient funds for purchasing needed supplies, equipment, and appropriate science reading materials* rank second, third, and fourth, respectively. *Teachers do not have sufficient science knowledge* is a barrier of considerable importance also (fifth).

There are significant differences between the percent of schools by school enrollment groups and by administrative unit enrollments that assign varying degrees of difficulty to each barrier. Thus, the same barrier does not rank number one in each school enrollment group or in each administrative unit enrollment group.

The percent of schools in each group that considered each barrier *very difficult*, *of some difficulty*, or *of no difficulty* is shown in table 37. Table F shows the ranking of these barriers on the basis of their mean degree of difficulty where *great difficulty* is weighted three, *some difficulty* is weighted two, and *no difficulty* is weighted one.

Inadequate room facilities ranked highest in the *800 and over* and the *400 to 799* school group, though it ranked third when *all schools* were considered.

Lack of supplies, *lack of consultant help*, *insufficient funds*, and *not enough time* were designated as barriers of considerable difficulty in the *49 and under* schools and the smaller administrative units.

Exhibition of Children's Science Work

As a way of communicating and sharing with others something about the science work of children, schools frequently exhibit the material products of the children's efforts. To determine the nature of this sharing, schools were asked whether they participate in exhibitions, varying from classroom displays to national science fairs. The results are recorded in table 40.

The more remote the exhibits are from the classroom, the less the participation in them by schools. For example, about two-thirds of all schools exhibit science materials in the classrooms, whereas less than one percent participate in the national science fair.

The larger the school enrollment, the higher the percent of participation in each type of exhibit. For example, 46 percent of the *800 and over* schools as compared to 16 percent of the *50 to 399* and 9.2 percent of the *49 and under* schools held building-wide exhibits. A very small percent of *all schools* were represented in State science fairs or in a national science fair.

Table F.—Barriers to effective science teaching in public elementary schools ranked for all schools, for school enrollment groups, and for administrative unit enrollment groups on their mean degree of difficulty: United States, 1961–62

Barriers to effective science teaching	School enrollment groups					Administrative unit enrollments				
	Total schools	800 and over	400 to 799	50 to 399	49 and under	25,000 and over	6,000 to 24,999	3,000 to 5,999	600 to 2,999	599 and under
Lack of consultant service	1	4	3	1	2	4	2	1	2	3
Lack of supplies	2	7	5	2	1	6	6	3	3	2
Inadequate room facilities	3	1	1	13	8	1	1	13	1	1
Insufficient funds	4	6	6	3	3	5	3	2	4	4
Do not have knowledge	5	2	2	4	7	2	13	4	5	8
Lack inservice opportunities	6	10	8	7	5	10	8	6	8	6
Inability to improvise	7	5	7	6	10	7	7	7	9	7
Do not know methods	8	3	4	5	9	3	4	5	6	10
Not enough time	9	8	10	8	4	8	9	8	7	5
Lack of community support	10	12	11	9	6	11	11	9	11	9
Teachers lack interest	11	9	9	10	13	9	10	10	10	11
What to teach not determined	12	13	12	11	12	13	5	11	12	12
Other areas more important	13	11	13	12	11	12	12	12	13	13

Chapter 4

Children With Special Aptitude or Interest in Science

THE WAYS OUR SCHOOLS make constructive use of knowledge about the interests and aptitudes of children are constantly being studied. When children demonstrate no interest or curiosity about a subject, it may be because they have had no enriching experiences which build interest. Schools frequently try to enrich children's experiences and establish a better base for learning. When interest is already present, schools attempt to capitalize on it in planning learning experiences. This is particularly true in the area of science.

In the elementary school, a child's aptitude for science is not a clearly distinguishable trait, but rather a complex of interest, general intellectual ability, mathematical skills, and motivation. To plan curriculum adaptations for those children who have special interests and aptitudes in science, schools must identify these children.

Identification of Children

The schools were asked whether they *use definite procedures* for identifying children with special interest or aptitude in science. Approximately one-half of *all schools* indicated that they do *use definite procedures.* This was true also of schools by school enrollment groups and by administrative unit enrollments. (See table 42.)

Those schools that *use definite procedures* were asked whether they use any—and if so, which—of the following as ways of identifying children with special interest or aptitude in science:

- **Study the results of standardized science achievement tests**
- **Study the results of standardized interest and aptitude tests**
- **Note sustained success in day-to-day class activities in science**
- **Note strong interest and ability in out-of-school projects or hobbies**
- **Observe participation in school science exhibits and fairs**
- **Note science reading habits**
- **Consult the school guidance counselor**

Table 44 shows the percent of schools that use each of the above procedures. *Noting the success of pupils in day-to-day class activities in science* is the most common practice in all school size and administrative unit groups. *Noting the science reading habits of pupils* and *observing their science projects and hobbies* are the two next most frequently used procedures.

Special Provisions

The schools were asked to indicate whether they used the following instructional adaptations for children with special aptitude or interest in science *very often*, *occasionally*, or *rarely or never:*

- Give more responsibility in connection with regular science lessons
- Give special assignments not required of all children
- Assign science projects not related to regular class science program
- Encourage children to perform demonstrations or experiments before their classmates

- Permit children to do experiments and work with science materials and equipment when they have finished other assignments
- Encourage children to participate in after-school or Saturday school-sponsored science activities
- Invite children to join the science club

Table G summarizes by grade groups the percent of public elementary schools that make these various provisions for children with special aptitude or interest in science.

Table G.—Percent of public elementary schools making extra provisions for children with special aptitude or interest in science, by grade group: United States, 1961–62

Extra provision and frequency	Grade groups		
	1 to 3	4 to 6	7 and 8
Give more responsibility for regular science lessons:			
Very often	23.9	34.3	44.8
Occasionally	49.0	53.8	41.2
Rarely or never	27.1	11.9	14.0
Give special assignments not required of all children:			
Very often	15.3	28.3	31.0
Occasionally	48.1	52.4	51.3
Rarely or never	36.6	19.3	17.7
Assign science projects not related to regular class science program:			
Very often	8.4	16.3	21.9
Occasionally	31.6	44.7	36.9
Rarely or never	60.0	39.0	41.3
Encourage children to perform demonstrations or experiments before classmates:			
Very often	23.5	37.1	42.6
Occasionally	49.4	49.3	45.9
Rarely or never	27.1	13.6	11.5
Permit children to do experiments and work with science materials when finished with other assignments:			
Very often	16.9	24.6	22.8
Occasionally	40.1	46.6	51.0
Rarely or never	43.0	28.9	26.2
Encourage participation in after-school and Saturday school-sponsored activities:			
Very often	6.1	8.8	8.5
Occasionally	14.1	19.4	19.4
Rarely or never	79.8	71.8	72.1
Invite children to join science clubs:			
Very often	3.3	5.6	8.5
Occasionally	5.9	8.6	7.5
Rarely or never	90.9	85.8	84.0

A straightforward reporting of the percent of schools that use the various extra provisions for exceptional children in science is relatively easy, but to be certain of the educational values of the various provisions is not easy. The prevalence of a particular practice does not necessarily make it good, or conversely, the rare use of a practice does not indicate that it is bad. For example, "Giving more responsibility for regular science lessons" may be excellent in some instances for some pupils and poor practice for others. This study does not attempt to place a value on the various provisions.

Give More Responsibility in Connection With Regular Science Lessons

Assigning more responsibility for regular science lessons is a procedure used *very often* or *occasionally* by over 72 percent of *all schools* in *grades one to three* and by over 85 percent in *grades four to six* and *grades seven and eight.* The smaller the size of the school enrollment, the lower the percent of schools that assign more responsibility as a way of adjusting to the interests of children. (See table 43–A.)

Give Special Assignments Not Required of All Pupils

About 15 percent of *all schools* give special assignments *very often* in *grades one to three*, 28 percent in *grades four to six*, and 31 percent in *grades seven and eight* to children with special aptitude or interest in science. (See table 43–B.) About 50 percent of *all schools* give special assignments *occasionally* to children in each of the three grade groups. Over 36 percent of *all schools rarely or never* give such assignments in *grades one to three* compared to 17.7 percent in *grades seven and eight.*

Assignment of Science Projects Not Related To Regular Class Science Program

This provision for science aptitude or interest is used *very often* by a relatively low percent of schools in each grade level group and *occasionally* and *rarely or never* by a substantially higher percent of schools. (See table 43–C.)

Encourage Students To Perform Demonstrations or Experiments Before Their Classmates

This is one of the most prevalent provisions used by schools for children with special aptitude or interest in science, particularly in the upper grades. It is used *very often* by approximately 40 percent of *all schools* in *grades four to six* and *grades seven and eight*, and *occasionally* by nearly 50 percent of schools at each grade group level. (See table 43–D.)

Permit Children To Do Experiments and Work With Science Materials and Equipment When They Have Finished Other Assignments

Although from 40 to 50 percent of *all schools* at the three grade group levels use this provision *occasionally*, from 43 percent in *grades one to three* to 26 percent in *grades seven and eight* use it *rarely or never*. Less than 25 percent of the schools use this provision *very often* at any grade level. (See table 43–E.)

Encourage Children To Participate in After-School or Saturday School-Sponsored Science Activities

The largest percent of schools *rarely or never* use this provision. The reasons for this are numerous and may be unrelated to the merits of the provision. Perhaps most schools are not open Saturdays. Many do not encourage children to stay after school because of bus schedules. Thus, it is not surprising that over 70 percent of *all schools* at all grade group levels *rarely or never* use this provision. A little less than 9 percent use it *very often* in *grades four to six* and *seven and eight*, and about 6 percent in *grades one to three*. A greater percent of the *800 and over* schools use this provision *very often* in each grade group than do the smaller schools. (See table 43–F.)

Invite Children To Join Science Clubs

Only 7 percent of the elementary schools have science clubs (table 33). Most schools, then, cannot invite children to join school science clubs as a way of meeting their special interest in science. Table 43–G and figure 26 show that only 3.3 percent of all the schools invite children in *grades one to three* to join science clubs *very often* and 5.9 percent *occasionally*. Science clubs are used *very often* in 5.6 percent of the schools in *grades four to six* and 8.5 percent in *grades seven and eight*.

About 20 percent of the *800 and over* schools and 11 percent of the *400 to 799* schools have science clubs. (See table 33.) It is reasonable to expect, therefore, that a larger percent of these schools than of the smaller schools would invite children to join science clubs, as shown in table 43–G.

Miscellaneous Special Provisions

The schools were invited to record on the questionnaire other provisions for children with special aptitude or interest in science. Numerous other interesting activities or experiences were listed one or more times. Since these suggestions may have potential value to other schools, they are listed here:

- Encourage children to watch various science programs and events on TV
- Provide interesting science books from school and local libraries
- Provide audiovisual materials, such as rock and mineral collections
- Encourage children to participate in summer playground science activities
- Assign science projects related to regular science programs
- Encourage pupils to bring in science projects completed at home or in clubs
- Encourage children with high IQ and special abilities to attend a day-a-week program with a teacher for the gifted
- Invite individuals to participate in science garden projects
- Encourage all children of all grade levels to participate in school, city, and county fairs
- Organize rock and shell collecting groups
- Do experiments from art and science magazines
- Give a special high school examination in which those scoring in the 90th percentile go into advanced science courses instead of general science the first year of high school
- Provide supplementary science magazines suitable for children at each grade level
- Encourage children to summarize and report to class knowledge gained from outside experiments, observations, and reading
- Hold special science workshops for fourth, fifth, and sixth grades 1 hour per week after school at the junior high school building under specially trained teachers
- Encourage projects such as caring for small animals and tropical fish, and starting plants from cuttings and seeds
- Encourage children to take part in park activities
- Encourage science activities as hobbies
- Encourage children to try simple experiments at home for parents and for own satisfaction
- Encourage children to participate in county-sponsored summer enrichment program
- Encourage children to participate in museum-sponsored programs

- **Invite children who won awards in science fair to show and explain their projects at school assemblies**
- **Include descriptions of projects and names of participating children in school newspaper**
- **Invite children to be members of a science squad**
- **Publish children's science writings in the school magazine**
- **Provide opportunities for interested children to participate in open discussion of current scientific advancements through guided question-and-answer periods**
- **Provide opportunity for children to participate in modern mathematics program in their studies of space-age science**
- **Encourage pupils to go on specially arranged trips to university science laboratories**

No count was made of the frequency of such activities; but from the substantial number of examples given, it appears that many schools throughout the Nation are using ingenious ways of providing for the science interests and abilities of children.

Status of Science Clubs in the Elementary School[1]

For many years, some elementary schools have had science clubs. Very often these were held during the regular school day and constituted the entire science program in some schools. In others, the clubs were an opportunity for children with special interests to meet informally for stimulating science experiences in ways other than in science classes.

In this study two questions were asked regarding science clubs: Do you believe organized science clubs in the elementary school are desirable? Does your school have an organized science club? In answer to the first question, over 75 percent of all elementary schools stated that they thought science clubs were desirable. This was reflected by all school enrollment groups and by all administrative unit enrollment groups. (See table 33.)

To the second question, the reply was quite different. Only 7 percent of *all schools* stated that they had science clubs. The percent of schools having science clubs, however, varied from 20 percent of the *800 and over* school enrollment group to 5 percent of the *49 and under* group. The larger the administrative unit enrollment, the higher the percent of schools that reported organized science clubs. Only 3 percent of the smallest administrative unit enrollment groups reported having science clubs. Thus, a higher percent of both large schools and large school systems have science clubs than do the small ones.

The study shows clearly that a very large percent of schools believe that science clubs are desirable, but only a very small percent of schools have them.

---

[1] Although the status of science clubs is discussed in this chapter dealing with the way schools provide for children with special interest or aptitude in science, it should not be inferred that science clubs are organized in the elementary schools only for such children.

Chapter 5

Inservice Education Activities

A VERY LARGE NUMBER of elementary teachers are faced with the challenge of teaching more and better science. Schools and colleges, in seeking ways to help teachers improve, are providing a variety of inservice opportunities. In this study schools were asked to indicate the kinds and sponsorship of inservice education opportunities available to their teachers.

Six somewhat varied types of inservice offerings were identified in the questionnaire:

- **Teachers' meetings**
- **Curriculum development and revision opportunity**
- **Elementary science courses**
- **Elementary science workshops**
- **Visitations and demonstration teaching**
- **TV and radio programs**

The percent of schools that participate in the various types of inservice activities is reported in table 41 and discussed below.

Teachers' Meetings

Schools of every size participate widely in teachers' meetings sponsored at the local school and school system levels. The larger the school size, the greater the percent of schools that sponsor teachers' meetings at the local level as an inservice activity. Over 80 percent of the *800 and over* schools compared to 45 percent of the *49 and under* schools sponsor teachers' meetings at the local level. About 60 percent of *all schools* report that teachers' meetings are sponsored at the school system level. A smaller percent of schools participate in teachers' meetings sponsored at the State level or by colleges.

Curriculum Development and Revision Opportunity

Nearly two-thirds of *all schools* report that they participate in curriculum development and revision at the *school system level.* From 35 percent of the *49 and under* to 86.7 percent of the *800 and over* schools participate at the *school system level,* but only 15 percent of the *800 and over* schools compared to 41 percent of the *49 and under* schools participate in curriculum development at the *State level.* Similarly, a smaller percent of large schools than of small schools participate in college-sponsored curriculum development and revision.

The larger the administrative unit, the greater the percent of participation in school system curriculum development and the less the participation in State-level curriculum development. A greater percent of schools in smaller administrative units participate in State- and college-sponsored curriculum activities than do the schools in the larger administrative units.

Elementary Science Courses

Over 65 percent of *all schools* have college-sponsored elementary science courses available to teachers. (See table 41.) Elementary science courses for teachers are provided in only 15 percent of *all schools* at the local level and in 28 percent at the school system level. The larger the school administrative unit, the greater the percent of schools offering elementary science courses at the school system level.

Elementary Science Workshops

Workshops are most commonly provided by the school system; over 50 percent of *all schools* have workshops provided by the school system. The *800 and over* schools and schools in the *25,000 and over* administrative units have more such workshops than do the smaller schools and the smaller administrative units. About 40 percent of *all schools* report the availability of college-sponsored elementary science workshops.

Visitations and Demonstration Teaching

Visiting other schools and seeing demonstration teaching are regarded highly as ways of improving science teaching. Such opportunities are provided in 43.8 percent of *all schools* at the local school level, and 60 percent of *all schools* at the school system level. A greater percent of the large schools provide visiting opportunities and demonstration teaching than do smaller schools.

A greater percent of the *49 and under* schools and the *599 and under* administrative units depend on visitation activities sponsored at the State level than do the larger schools and school systems.

TV and Radio Programs

Nearly 40 percent of *all schools* use TV and radio programs at the local school level and 35 percent at the school system level for inservice education in science. However, 67.6 percent of the *800 and over* compared to 27.8 percent of the *49 and under* schools participate in inservice TV and radio programs sponsored by the school system. More smaller schools than larger schools depend on State- and college-sponsored TV programs. A larger percent of the larger school administrative units sponsor TV and radio programs at the school system level than do the smaller administrative units. For example, 78.5 percent of the *25,000 and over* administrative units compared to 20.2 percent of the *599 and under* sponsor TV and radio programs.

Additional studies are needed to determine the relative value of various types of inservice activities and sponsorship in terms of their contribution to the improvement of all phases of science teaching in the elementary school.

Chapter 6

Summary and Implications

Summary of Selected Findings

THE INTERPRETATIONS OF FACTS revealed in this study will depend on the point of view of the interpreter regarding science and its place in the elementary school program. One who believes science can best be taught by the classroom teacher rather than by a special teacher will interpret favorably the high percent of schools where the classroom teacher does the teaching. One who believes that science can and should be taught with a minimum of purchased supplies and equipment will not be alarmed at the dearth of science equipment and supplies available to elementary schools.

A wide variety of practices and procedures was found among the schools in almost every aspect of science teaching studied. Perhaps this great variety is itself some evidence that different philosophies of science teaching prevail. However, it is clear that economic resources, teacher preparation, and other factors are also related to the status of science teaching. A few of the major findings are summarized without interpretation.

Purposes for Teaching Science

Over 85 percent of the public elementary schools believe that teaching children *to learn how to think* and *to develop their curiosity* are very important science teaching objectives. *To teach knowledge about typical areas of science* and *to help children learn concepts and ideas for interpreting their environment* also rate high as very important objectives. A relatively low percent of schools believe that it is *very important to prepare pupils for high school science* or *to develop scientists.*

How Much Science the Schools Teach

Approximately 4.5 percent of the schools do not teach science at all in kindergarten and grade one. The percent of schools that do not teach science at all from the second grade up is negligible. Nearly 60 percent of all public elementary schools with kindergartens teach science more than one-half year to kindergarten children. The percent that teach science more than one-half year increases by grade to nearly 83 percent in grades seven and eight.

Time Devoted to Science

The time devoted to science instruction varies from less than 20 to over 261 minutes per week in every grade from grade one through grade eight: in some schools science is taught in the first grade for as much as 261 minutes or more and, conversely, in the upper grades as little as 20 minutes or less. However, the median number of minutes for *all schools* increases by grade from 45 minutes per week in kindergarten to 135 minutes in the eighth grade.

Relationship of Science to Other Subjects

The percent of public schools that teach science *as a separate subject* increases by grade from 24 percent in kindergarten to 79 percent in the eighth grade. Except in kindergarten, the largest percent of *all schools* teach science *as a separate sub-*

ject in every grade, though in about 25 percent of the schools science is *integrated with other subjects* in grades one and two.

Fifteen percent of *all schools* that teach science *as a separate subject* are *departmentalized* at some grade level. Departmentalized science classes are more prevalent in the large schools than in the small.

Health is taught primarily with science in 20 percent of *all schools* in kindergarten, 25 percent in grades one to three, 28 percent in grades four to six, and 38 percent in grades seven and eight. Health is taught as a separate subject by the greatest percent of schools at every grade level, except kindergarten where it is usually integrated with all subjects.

Conservation is taught primarily with science in 27 percent of the schools in grades one to three, 28 percent in grades four to six, and 32 percent in grades seven and eight. However, conservation is integrated with all subjects in the largest percent of schools at each grade level.

Who Teaches Elementary Science

Science is taught by a *classroom teacher without the help of an elementary science specialist* in over 80 percent of the schools in grades one through five and in over 70 percent of the schools in grades six through eight. Science consultant help, varying from that of a general consultant to that of a science specialist, is available in over 40 percent of all public elementary schools. Consultant help is over four times as prevalent in the *800 and over* schools as it is in the small *49 and under* schools.

Availability of Science Equipment and Supplies

About eight percent of all public elementary schools believe their science equipment and supplies are *very plentiful;* 46 percent *generally adequate;* 35 percent *inadequate;* and 11 percent report that equipment and supplies are *completely lacking.* In general, more of the larger schools and schools in larger administrative units, compared to the small schools, believe their equipment and supplies are adequate.

Many common items considered of value in teaching science are completely unavailable in most schools. For 36 out of 42 selected common items of science equipment, the mode number available per school was *zero.* The mode for the remaining six common items was *one* per school.

Per-Pupil Expenditure for Science

The annual outlay for science equipment and supplies reported by most public elementary schools ranges from 11 to 14 cents per pupil, although 15 percent of *all schools* spend $1.51 and over per pupil. Although many small schools spend as much as $4 or $5 per pupil, the total amount spent in such schools is frequently very small because of low enrollment figures. On the other hand, large schools with a much smaller per-pupil outlay have greater total financial resources for science.

Identifying Pupils With Special Interest or Aptitude in Science

About 50 percent of the public elementary schools use definite procedures to identify children with special aptitude or interest in science. *Noting the success of pupils in science class activities* is the most common procedure used in all school size and administrative unit groups. *Noting the science reading habits of pupils* and *observing their science hobbies and projects* are the two next most frequently used procedures.

Barriers to Science Teaching

The two barriers to effective science teaching that ranked highest for all public elementary schools are the *lack of adequate consultant service* and the *lack of supplies and equipment. Inadequate room facilities, insufficient funds,* and *lack of science knowledge* by teachers are among the barriers considered most important by all schools.

Inservice Education Activities and Sponsors

Elementary teachers participate widely in several types of science inservice education activities including teachers' meetings, curriculum development and revision, elementary science courses and workshops, school visitation, and TV and radio programs. The larger schools and school administrative units sponsor their own activities more than do the smaller schools and smaller administrative units, which participate comparatively more often in State-level and college-sponsored activities.

Recommendations and Implications

The data in this study reflect great areas of inadequacy in present programs of some elementary schools. At the same time the data reflect the advanced and highly developed nature of programs in other schools. In order for the schools with inadequate procedures or conditions to become more nearly comparable with the other schools, and for all schools to improve, changes will be necessary. The following recommendations are for consideration by schools in reassessing their individual science programs.

- The average class size in many of the larger schools should be reduced for more effective instruction in science.
- The number of minutes per week that science is taught should be increased in a large percent of schools in order for children to have a science program of greater scope and depth.
- The substantial percent of schools which teach science incidentally in the lower grades may wish to reassess the advantages and disadvantages of that approach in comparison with a program based on a systematically planned curriculum.
- The need of many elementary schools to acquire more adequate supplies of science teaching materials and equipment is clear. Small schools and schools in small administrative units particularly need to put more effort into obtaining and using science equipment and supplies.
- Those schools which report that they *rarely or never* use materials for science experiments or demonstrations need to develop ways to obtain materials and supplies for individual work and to help teachers learn to use the material effectively.
- A very substantial percent of schools *rarely or never* use library or supplementary books for teaching science. Acquiring and using such books represent an area of potential improvement.
- Schools need to develop or participate in effective inservice programs that enable teachers to update their knowledge and to learn better methods of teaching.
- A rather substantial percent of schools do not use any particular methods of identifying children with special aptitude or interest in science. This is an area of concern to which all schools need to give more attention. Providing proper programs for outstanding children in science must also be given constant attention.
- Lack of consultant service was indicated by schools as a most important barrier to good science teaching. This suggests the need of schools to identify consultant resources, particularly for the classroom teachers who most often teach science in elementary classrooms.

Chapter 7

Characteristics of a Good Science Program

FROM THE LITERATURE of science education and from current discussions at science conferences and seminars, it is possible to identify several characteristics of a good science program on which there seems to be general agreement. The following presentation briefly characterizes such a program and will in a general way serve as a basis for assessing the findings of this study and any existing science program.

The purposes for teaching science are clearly stated and understood.

All persons concerned with developing and carrying out a science program in a school must think and plan together to decide on the purposes to be achieved. Three purposes that might, for example, serve as the goals of science instruction are:

1. Children learn to use the methods of investigation, study, inquiry, exploration, and discovery used by scientists.
2. Children gain an increasingly better understanding of principles, concepts, and other descriptions of natural events by which they can understand, interpret, explain, and modify their environment.
3. Children develop an appreciation of the methods that yield new knowledge about the universe, and understand the importance of free and objective inquiry as a condition of research that leads to valid explanations of phenomena.

The methods by which science is taught complement and support the purposes.

If purposes such as those proposed above are accepted by a school, then the science program will provide many opportunities for children to engage in exploring their environment directly through observation, experimentation, and measurement. Children will ask questions about their environment and should be given help in answering these questions. Children will have many laboratory-type activities which involve them directly in collecting data and making observations. They may learn to make records of relevant data and assess these data. An atmosphere of freedom of discovery will prevail.

Children will be introduced to and will use some of the techniques of the biologist, the physicist, the chemist, the geologist, the astronomer, and oceanographer. Children will learn that scientists use different ways of studying different things. They will gain this understanding in part by using the different ways themselves in appropriate situations. In a good program, the methods of teaching science are tailored in large measure to the methods of science, yet the elementary school science program will not basically be designed to make scientists of children.

The curriculum is planned to support the purposes.

The curriculum will be planned so that children will investigate the major aspects of the universe—the earth, living things, the sky, the sea, energy and matter, outer space—and through these investigations will come to understand the basic concepts that describe and explain the physical universe. The curriculum will have a structure that will enable children to develop knowledge of concepts in a logical and developmental fashion. Topics or problems will be studied in sufficient depth to challenge children at every age level. Meaningless repetition will be at a minimum. The curriculum will continuously emphasize the methods of scientists and give children opportunities to use them.

The equipment, supplies, facilities, and teaching resources are adequate and suited to the purposes.

Suitable rooms and enough space for children to work with materials are essential. Equipment and supplies will be available in a sufficient quantity so each child typically will be able to use the materials directly as he makes his own investigations.

Science teaching will not be primarily a reading program, though children will read, as do scientists, to acquire background information and specific facts relevant to the inquiry. Teachers and children will use local, improvised, uncommercial materials from time to time, but if the purposes are to be fully achieved, selected items of equipment and supplies will be purchased and will be on hand so that learning can proceed efficiently.

The personnel for science teaching have the competence to guide children in learning science.

Classroom teachers alone, special science teachers, teachers with the help of science specialists, or other consultants, working together in some combination, will provide children in every science class or activity with rich science learning experiences.

Many persons and resources are available for the improvement of elementary science in the public schools. Numerous curriculum projects are developing varied and imaginative materials and course content suggestions. Scientists and educators are working together to give meaning and direction to the science experiences of children. All schools under the leadership of alert teachers, principals, science specialists, and other consultants or leaders have the responsibility of keeping abreast of these new developments and of identifying and using the resources available or developing and inventing new resources.

The problems are now fairly clear. The resources for solving the problems are numerous. Though much yet remains to be learned about teaching science to children, enough is presently known about the purposes, methods, and content of science to guide schools in making a realistic appraisal of their science programs and planning ways to fulfill the purposes of science education in relation to the total elementary school program.

Appendix A: Basic Tables

TABLE 1.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY SCHOOL ENROLLMENT AND ADMINISTRATIVE UNIT ENROLLMENT, AND BY RESPONSE CLASSIFICATION. 1961-62

RESPONSE CLASSIFICATION	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ITEM RESPONSE										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
QUESTIONNAIRES WITHOUT ITEM NONRESPONSE	61.1	58.5	59.0	62.4	61.3	58.3	55.3	58.2	71.9	59.4
QUESTIONNAIRES WITH ITEM NONRESPONSE	38.9	41.5	41.0	37.6	38.7	41.7	44.7	41.8	28.1	40.6
INSTRUMENT RESPONSE										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
RESPONDENT SCHOOLS	87.1	93.2	91.6	92.7	73.5	85.5	88.0	88.2	86.4	87.1
NONRESPONDENT SCHOOLS	12.9	6.8	8.4	7.3	26.5	14.5	12.0	11.8	13.6	12.9

TABLE 2.-- TOTAL ENROLLMENT AND ENROLLMENT BY GRADE IN PUBLIC ELEMENTARY SCHOOLS, BY SCHOOL ENROLLMENT AND ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

(NUMBERS IN THOUSANDS)

GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
TOTAL	24,567	4,487	11,932	7,584	564	5,780	5,384	3,973	6,141	3,289
KINDERGARTEN	2,196	475	1,219	484	18	617	462	335	587	195
FIRST	3,777	740	1,861	1,099	77	926	838	655	932	426
SECOND	3,598	677	1,571	1,087	83	852	796	580	942	428
THIRD	3,399	599	1,696	1,024	80	807	766	548	883	394
FOURTH	3,263	587	1,604	983	89	764	748	539	804	408
FIFTH	3,052	555	1,448	978	71	736	696	496	740	385
SIXTH	2,866	517	1,391	895	63	699	648	453	695	371
SEVENTH	1,067	178	403	443	43	152	170	175	271	299
EIGHTH	876	124	304	409	39	94	109	134	214	325
COMBINATION	473	35	255	182	1	133	151	58	73	58

TABLE 3.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY TYPE OF SCHOOL AND BY SCHOOL ENROLLMENT. 1961-62

TYPE OF SCHOOL	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
TOTAL	100.0	100.0	100.0	100.0	100.0
GRADES K TO 6	20.0	51.5	43.7	14.0	3.7
GRADES K TO 8	16.1	18.5	12.1	14.5	21.7
GRADES 1 TO 6	17.1	9.6	19.1	19.9	12.6
GRADES K TO 4	1.1	.2	2.0	.4	1.5
GRADES 1 TO 4	2.0	1.0	1.6	2.4	2.1
GRADES K TO 2	.1	.0	.0	.2	.0
GRADES K TO 3	1.5	.2	.1	3.5	.0
GRADES K TO 5	1.3	2.6	3.2	.5	.8
GRADES K TO 7	2.1	2.8	3.3	1.4	2.1
GRADES 1 TO 3	.4	.0	1.3	.1	.3
GRADES 1 TO 5	1.8	.5	.2	2.7	2.2
GRADES 1 TO 7	3.4	4.4	3.5	3.0	3.7
GRADES 1 TO 8	30.7	6.6	9.2	36.2	44.7
GRADES 4 TO 6	.3	.0	.0	.2	.9
GRADES 4 TO 8	.8	.0	.2	.8	1.4
GRADES 5 AND 6	.0	.0	.0	.0	.0
GRADES 5 TO 8	.5	.0	.2	.0	1.4
GRADES 6 TO 8	.0	.7	.0	.0	.0
OTHER	.5	1.6	.4	.3	.9

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 4.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY CLASS SIZE CATEGORY OF SCHOOL AVERAGES, BY GRADES, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62

CLASS SIZE CATEGORY OF SCHOOL AVERAGES	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
19 AND UNDER	42.0	.0	.1	32.2	99.4	3.3	14.5	22.3	20.1	78.3
20 TO 24	10.6	.2	3.4	22.7	.0	4.6	13.3	12.0	14.8	8.6
25 TO 29	25.1	32.1	46.6	28.9	.0	28.3	37.0	31.7	42.0	9.7
30 TO 34	19.2	46.5	43.8	14.7	.6	51.0	29.7	30.0	20.9	3.3
35 AND OVER	3.1	21.3	6.0	1.4	.0	12.9	5.5	4.0	2.1	.0
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
19 AND UNDER	31.0	.8	.6	36.1	100.0	2.1	4.5	13.4	6.8	77.4
20 TO 24	16.8	15.4	19.2	23.1	.0	13.0	17.3	8.1	17.3	21.2
25 TO 29	17.5	27.9	27.9	12.7	.0	25.0	29.8	31.7	23.4	.0
30 TO 34	16.8	19.3	25.5	15.5	.0	23.0	24.2	24.1	27.8	1.4
35 AND OVER	17.9	36.6	26.8	12.6	.0	37.0	24.1	22.8	24.7	.0
GRADE ONE										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
19 AND UNDER	41.3	.2	.4	34.8	99.7	4.1	15.0	23.4	23.4	76.2
20 TO 24	12.7	3.4	12.9	21.0	.0	11.3	19.5	17.1	11.1	9.8
25 TO 29	20.3	32.1	40.0	19.8	.0	28.6	30.6	23.7	39.6	3.1
30 TO 34	18.6	43.6	35.3	17.0	.3	38.7	27.2	25.7	18.1	7.9
35 AND OVER	7.2	20.7	11.4	7.4	.0	17.3	7.7	10.1	7.8	3.1
GRADE TWO										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
19 AND UNDER	41.5	.0	.0	38.1	99.6	3.6	16.7	22.1	22.7	78.8
20 TO 24	14.1	2.3	16.7	21.7	.1	8.6	15.1	14.5	18.0	12.9
25 TO 29	16.9	29.8	36.6	13.6	.0	26.1	32.8	22.2	25.1	1.8
30 TO 34	19.6	43.8	36.5	17.8	.3	41.2	26.0	27.4	29.2	3.2
35 AND OVER	7.8	24.2	10.2	8.8	.0	20.5	9.5	13.8	5.0	3.2
GRADE THREE										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
19 AND UNDER	39.3	.0	.2	32.5	99.1	5.4	15.5	23.9	20.5	72.9
20 TO 24	14.2	1.6	7.8	27.3	.0	5.0	11.8	12.5	18.8	15.8
25 TO 29	19.5	34.2	33.9	20.7	.0	23.2	26.5	24.7	34.2	6.3
30 TO 34	20.0	40.6	45.0	14.3	.9	41.2	32.2	30.4	22.4	4.9
35 AND OVER	6.9	23.6	13.2	5.3	.0	25.3	14.0	8.6	4.2	.0
GRADE FOUR										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
19 AND UNDER	42.4	.0	.1	38.5	99.7	2.8	18.3	21.2	22.5	79.2
20 TO 24	8.6	1.1	9.1	14.1	.0	8.6	9.8	13.0	15.5	3.2
25 TO 29	20.4	22.7	30.7	26.0	.0	24.4	30.8	28.7	26.5	9.5
30 TO 34	19.8	49.3	44.8	13.3	.3	39.7	28.7	25.9	28.1	4.9
35 AND OVER	8.8	26.9	15.3	8.1	.0	24.6	12.4	11.3	7.3	3.2
GRADE FIVE										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
19 AND UNDER	41.3	.2	.2	34.8	99.7	3.7	16.5	21.8	21.2	75.7
20 TO 24	11.9	1.7	7.8	22.5	.1	7.5	11.4	10.5	14.2	12.6
25 TO 29	19.8	22.3	42.1	18.5	.0	23.2	27.0	27.7	31.9	8.1
30 TO 34	19.1	47.4	34.4	18.1	.3	40.5	31.9	25.7	25.4	3.7
35 AND OVER	8.0	28.5	15.5	6.0	.0	25.0	13.2	14.3	7.2	.0
GRADE SIX										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
19 AND UNDER	44.4	.2	.6	43.1	99.7	4.0	14.5	22.1	20.4	84.0
20 TO 24	6.6	2.2	8.3	10.0	.0	6.9	11.8	11.9	12.0	.5
25 TO 29	18.8	31.6	32.7	20.1	.0	26.1	31.1	20.8	34.6	4.5
30 TO 34	21.4	37.8	39.3	21.4	.3	38.3	28.4	31.5	23.4	10.4
35 AND OVER	8.7	28.3	19.2	5.5	.0	24.7	14.1	13.6	9.6	.5
GRADE SEVEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
19 AND UNDER	60.2	.0	.3	50.5	100.0	4.2	29.5	40.2	16.9	78.1
20 TO 24	9.9	1.0	12.3	17.4	.0	5.6	12.5	18.5	14.5	7.7
25 TO 29	16.4	8.7	46.0	21.1	.0	19.6	23.3	14.3	24.2	14.2
30 TO 34	8.8	52.3	25.7	7.7	.0	35.4	17.5	15.9	36.7	.0
35 AND OVER	4.9	38.0	15.7	3.3	.0	33.2	17.2	11.0	7.7	.0
GRADE EIGHT										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
19 AND UNDER	60.8	.6	.7	46.9	100.0	5.9	25.1	45.3	21.5	74.1
20 TO 24	11.8	3.7	2.7	23.7	.0	10.3	23.7	7.4	11.1	11.4
25 TO 29	12.7	6.2	54.5	13.6	.0	18.1	15.8	19.3	16.6	10.8
30 TO 34	10.2	42.5	21.1	13.9	.0	33.1	15.8	16.5	38.6	3.6
35 AND OVER	4.5	46.9	21.0	1.8	.0	32.6	19.6	11.4	12.0	.0

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 5.-- AVERAGE CLASS SIZE BY GRADE IN PUBLIC ELEMENTARY SCHOOLS, BY SCHOOL ENROLLMENT AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES	23	32	30	22	3	31	27	27	26	11
KINDERGARTEN	27	33	30	23	3	33	29	31	28	13
FIRST	24	32	29	23	4	31	27	27	26	12
SECOND	24	32	29	22	4	31	26	27	26	12
THIRD	24	32	30	22	4	31	27	27	26	12
FOURTH	24	32	30	22	4	31	27	27	26	12
FIFTH	23	33	30	22	3	31	27	27	26	11
SIXTH	23	32	30	22	3	31	27	27	26	11
SEVENTH	18	34	30	19	3	32	27	25	28	10
EIGHTH	17	33	30	20	3	32	27	24	28	11
COMBINATION	27	28	27	26	6	29	26	26	25	28

TABLE 6.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS ORGANIZED BY STANDARD GRADES OR NONGRADED CLASSES BY LEVEL, BY SCHOOL ENROLLMENT AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

SCHOOL LEVELS AND CLASS ORGANIZATION	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
PRIMARY LEVEL										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
STANDARD GRADE	97.6	95.8	95.6	98.4	98.6	91.9	95.2	98.0	98.4	99.5
NONGRADED	2.4	4.2	4.4	1.6	1.4	8.1	4.8	2.0	1.6	.5
INTERMEDIATE LEVEL										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
STANDARD GRADE	98.9	99.8	98.2	99.3	98.7	99.3	97.3	99.3	98.3	99.5
NONGRADED	1.1	.2	1.8	.7	1.3	.7	2.7	.7	1.7	.5
UPPER LEVEL										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
STANDARD GRADE	98.9	99.5	96.0	100.0	98.6	99.6	98.5	99.5	95.5	99.4
NONGRADED	1.1	.5	4.0	.0	1.4	.4	1.5	.5	4.5	.6
ALL LEVELS										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
STANDARD GRADE	98.4	98.0	96.8	99.1	98.6	96.0	96.5	98.8	97.9	99.5
NONGRADED	1.6	2.0	3.2	.9	1.4	4.0	3.5	1.2	2.1	.5

TABLE 7.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS DEPARTMENTALIZED FOR SCIENCE TEACHING AT SOME GRADE LEVEL, BY SCHOOL ENROLLMENT AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

DEPARTMENTALIZED AT SOME GRADE LEVEL	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
YES	15.1	36.5	21.8	18.5	.8	23.4	17.9	11.6	20.4	10.3
NO	84.9	63.5	78.2	81.5	99.2	76.6	82.1	88.4	79.6	89.7

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 8.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS ASSIGNING VARIOUS DEGREES OF IMPORTANCE TO SELECTED SCIENCE TEACHING OBJECTIVES, BY SCHOOL ENROLLMENT. 1961-62

SCIENCE TEACHING OBJECTIVES AND DEGREE OF IMPORTANCE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
KNOWLEDGE ABOUT TYPICAL AREAS [1]					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY IMPORTANT	84.3	85.3	87.8	78.2	90.5
SOME IMPORTANCE	14.9	14.2	10.9	21.5	8.2
LITTLE OR NO IMPORTANCE	.8	.5	1.3	.3	1.3
PREPARE FOR HIGH SCHOOL					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY IMPORTANT	42.8	29.7	29.9	40.4	59.7
SOME IMPORTANCE	45.2	49.9	55.5	46.5	33.6
LITTLE OR NO IMPORTANCE	12.1	20.4	14.6	13.1	6.7
DEVELOP PROBLEM-SOLVING SKILLS					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY IMPORTANT	73.9	83.1	79.6	69.6	74.1
SOME IMPORTANCE	24.2	15.9	18.4	29.0	23.1
LITTLE OR NO IMPORTANCE	1.9	1.0	2.0	1.4	2.8
CONCEPTS AND IDEAS					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY IMPORTANT	84.2	92.0	90.3	82.9	79.6
SOME IMPORTANCE	15.5	8.0	9.6	16.4	20.3
LITTLE OR NO IMPORTANCE	.4	.0	.1	.7	.2
APPRECIATIONS AND ATTITUDES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY IMPORTANT	82.4	92.6	80.9	80.6	84.6
SOME IMPORTANCE	17.1	7.2	18.8	18.7	15.1
LITTLE OR NO IMPORTANCE	.5	.2	.4	.7	.3
RESPONSIBLE USE OF KNOWLEDGE					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY IMPORTANT	69.3	72.9	66.7	65.3	76.8
SOME IMPORTANCE	27.7	25.9	31.7	30.3	20.8
LITTLE OR NO IMPORTANCE	3.0	1.1	1.6	4.3	2.5
DEVELOP SCIENTISTS					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY IMPORTANT	17.6	8.5	14.5	12.7	29.3
SOME IMPORTANCE	51.8	61.2	54.4	52.6	46.5
LITTLE OR NO IMPORTANCE	30.6	30.2	31.1	34.7	24.2
DEVELOP HOBBIES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY IMPORTANT	40.9	36.7	39.9	39.0	45.4
SOME IMPORTANCE	50.4	58.1	51.2	53.3	43.3
LITTLE OR NO IMPORTANCE	8.7	5.2	9.0	7.2	11.4
LEARN HOW TO THINK					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY IMPORTANT	85.2	87.2	87.7	84.9	83.2
SOME IMPORTANCE	14.3	12.3	12.0	14.7	15.8
LITTLE OR NO IMPORTANCE	.5	.5	.3	.3	1.0
DEVELOP CURIOSITY					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY IMPORTANT	87.0	95.5	91.6	83.4	87.2
SOME IMPORTANCE	12.0	3.8	5.7	16.5	11.9
LITTLE OR NO IMPORTANCE	1.0	.6	2.7	.1	.9

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

[1] Examples of typical areas of science study are plants, animals, magnetism and electricity, sound, light, heat, astronomy, weather, the earth, and outer space.

TABLE 9.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS TEACHING SCIENCE AS A DEFINITE PART OF THE CURRICULUM FOR VARIOUS PARTS OF A SCHOOL YEAR, BY GRADE AND BY SCHOOL ENROLLMENT. 1961-62

AMOUNT OF TIME SCIENCE IS TAUGHT AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
NOT TAUGHT AT ALL	4.5	2.8	4.5	3.1	8.1
TAUGHT LESS THAN HALF YEAR	24.4	12.0	25.8	34.6	7.9
TAUGHT ONLY HALF YEAR	11.1	1.9	3.6	2.9	46.9
TAUGHT MORE THAN HALF YEAR	59.9	83.3	66.0	59.4	37.2
FIRST GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
NOT TAUGHT AT ALL	4.4	1.0	.3	3.9	9.9
TAUGHT LESS THAN HALF YEAR	13.1	8.3	7.0	17.3	12.6
TAUGHT ONLY HALF YEAR	11.7	2.9	16.4	4.7	20.9
TAUGHT MORE THAN HALF YEAR	70.8	87.8	76.3	74.0	56.7
SECOND GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
NOT TAUGHT AT ALL	.8	.3	.0	.7	1.9
TAUGHT LESS THAN HALF YEAR	10.6	7.8	3.4	14.9	10.6
TAUGHT ONLY HALF YEAR	12.6	2.8	17.2	8.2	17.9
TAUGHT MORE THAN HALF YEAR	76.0	89.1	79.3	76.1	69.5
THIRD GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
NOT TAUGHT AT ALL	.5	.2	.0	.4	1.2
TAUGHT LESS THAN HALF YEAR	7.2	6.7	3.3	9.6	7.1
TAUGHT ONLY HALF YEAR	14.5	2.8	7.6	15.4	22.1
TAUGHT MORE THAN HALF YEAR	77.7	90.3	89.[illegible]	74.6	69.6
FOURTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
NOT TAUGHT AT ALL	.0	.0	.0	.0	.0
TAUGHT LESS THAN HALF YEAR	5.1	2.4	1.2	7.3	5.9
TAUGHT ONLY HALF YEAR	13.6	3.5	4.4	15.9	20.4
TAUGHT MORE THAN HALF YEAR	81.2	94.1	94.3	76.8	73.6
FIFTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
NOT TAUGHT AT ALL	.0	.0	.0	.0	.0
TAUGHT LESS THAN HALF YEAR	2.1	1.9	.9	1.5	4.2
TAUGHT ONLY HALF YEAR	13.6	2.9	3.1	16.3	21.1
TAUGHT MORE THAN HALF YEAR	84.4	95.2	96.1	82.2	74.7
SIXTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
NOT TAUGHT AT ALL	.0	.0	.1	.0	.0
TAUGHT LESS THAN HALF YEAR	1.8	1.6	.9	.8	4.4
TAUGHT ONLY HALF YEAR	9.6	2.4	2.0	12.9	12.6
TAUGHT MORE THAN HALF YEAR	88.6	96.0	97.0	86.3	83.0
SEVENTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
NOT TAUGHT AT ALL	.0	.0	.0	.0	.0
TAUGHT LESS THAN HALF YEAR	3.7	.0	.3	5.2	3.3
TAUGHT ONLY HALF YEAR	13.6	3.4	.3	17.2	14.7
TAUGHT MORE THAN HALF YEAR	82.7	96.6	99.5	77.6	81.9
EIGHTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
NOT TAUGHT AT ALL	.6	.0	5.4	.0	.0
TAUGHT LESS THAN HALF YEAR	4.0	.0	.0	5.7	3.5
TAUGHT ONLY HALF YEAR	13.0	3.1	1.4	12.6	17.5
TAUGHT MORE THAN HALF YEAR	82.4	96.9	93.2	81.7	79.1

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 10.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS WITH VARIOUS SCIENCE TEACHING PATTERNS, BY GRADE AND BY SCHOOL ENROLLMENT, 1961-1962

TEACHING PATTERN AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT AS SEPARATE SUBJECT	23.5	16.0	13.0	17.2	62.6
INTEGRATED WITH OTHER SUBJECTS	23.6	29.3	34.4	17.8	10.8
INCIDENTAL	25.8	20.2	18.5	40.7	12.3
SEPARATE SUBJECT AND INCIDENTAL	10.5	19.5	13.3	10.5	.2
INTEGRATED AND INCIDENTAL	16.4	14.3	20.7	13.8	14.2
OTHER	.1	.6	.1	.0	.0
FIRST GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT AS SEPARATE SUBJECT	39.4	38.0	35.0	29.8	61.7
INTEGRATED WITH OTHER SUBJECTS	26.6	22.2	32.7	31.0	13.3
INCIDENTAL	8.3	8.1	4.0	11.1	7.7
SEPARATE SUBJECT AND INCIDENTAL	16.5	22.6	15.5	19.3	10.9
INTEGRATED AND INCIDENTAL	9.2	8.8	12.8	8.8	6.4
OTHER	.0	.3	.0	.0	.0
SECOND GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT AS SEPARATE SUBJECT	43.6	40.5	41.9	33.7	64.4
INTEGRATED WITH OTHER SUBJECTS	24.1	22.3	28.0	30.3	9.0
INCIDENTAL	4.6	5.9	.9	5.9	5.7
SEPARATE SUBJECT AND INCIDENTAL	19.8	24.0	18.4	22.5	15.4
INTEGRATED AND INCIDENTAL	7.9	6.9	10.8	7.7	5.5
OTHER	.0	.3	.0	.0	.0
THIRD GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT AS SEPARATE SUBJECT	53.7	48.9	50.1	47.0	70.0
INTEGRATED WITH OTHER SUBJECTS	17.5	18.0	21.3	22.5	4.8
INCIDENTAL	2.7	1.5	.2	3.4	3.9
SEPARATE SUBJECT AND INCIDENTAL	20.0	27.5	20.5	20.9	16.5
INTEGRATED AND INCIDENTAL	6.1	3.7	7.9	6.2	4.8
OTHER	.0	.3	.0	.0	.0
FOURTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT AS SEPARATE SUBJECT	64.7	61.9	65.2	60.3	72.6
INTEGRATED WITH OTHER SUBJECTS	8.4	5.9	8.1	12.7	1.9
INCIDENTAL	1.9	.5	.3	2.9	1.8
SEPARATE SUBJECT AND INCIDENTAL	19.8	29.2	18.3	19.6	19.0
INTEGRATED AND INCIDENTAL	5.0	2.1	6.3	4.3	4.7
OTHER	.3	.3	1.2	.0	.0
FIFTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT AS SEPARATE SUBJECT	70.0	64.8	68.1	67.5	76.6
INTEGRATED WITH OTHER SUBJECTS	6.3	5.5	6.0	9.2	2.0
INCIDENTAL	1.6	.6	.0	3.1	.9
SEPARATE SUBJECT AND INCIDENTAL	17.3	27.3	19.0	15.5	17.1
INTEGRATED AND INCIDENTAL	4.7	1.5	6.9	4.7	3.4
OTHER	.0	.4	.0	.0	.0
SIXTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT AS SEPARATE SUBJECT	68.0	62.2	65.4	67.2	72.5
INTEGRATED WITH OTHER SUBJECTS	6.3	4.8	6.3	9.3	2.0
INCIDENTAL	.3	.6	.0	.0	.9
SEPARATE SUBJECT AND INCIDENTAL	21.5	30.3	19.8	21.4	21.0
INTEGRATED AND INCIDENTAL	3.6	1.6	7.2	1.8	3.5
OTHER	.4	.4	1.4	.0	.0
SEVENTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT AS SEPARATE SUBJECT	79.9	61.1	76.3	81.4	79.1
INTEGRATED WITH OTHER SUBJECTS	.8	7.7	3.6	.7	.2
INCIDENTAL	.0	.0	.0	.0	.1
SEPARATE SUBJECT AND INCIDENTAL	16.9	31.3	20.2	16.9	16.2
INTEGRATED AND INCIDENTAL	2.4	.0	.0	.9	4.4
OTHER	.0	.0	.0	.0	.0

TABLE 10.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS WITH VARIOUS SCIENCE TEACHING PATTERNS, BY GRADE AND BY SCHOOL ENROLLMENT, 1961-1962 (CONTINUED)

TEACHING PATTERN AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS: 800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
EIGHTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT AS SEPARATE SUBJECT	78.9	68.6	88.5	79.9	77.5
INTEGRATED WITH OTHER SUBJECTS	.6	4.4	1.8	.9	.2
INCIDENTAL	.8	.0	.0	1.8	.1
SEPARATE SUBJECT AND INCIDENTAL	19.0	27.0	9.6	17.4	20.9
INTEGRATED AND INCIDENTAL	.6	.0	.0	.0	1.3
OTHER	.0	.0	.0	.0	.0

TABLE 11.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY TOTAL AND MEAN NUMBER OF PERIODS PER WEEK OF SCIENCE INSTRUCTION BY GRADE AND BY SCHOOL ENROLLMENT, 1961-62

PERIODS PER WEEK AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS: 800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
ONE	12.4	17.3	15.7	19.2	1.1
TWO	30.5	44.3	30.5	47.7	8.9
THREE	18.1	17.2	31.1	7.0	18.2
FOUR	3.6	3.0	4.5	1.9	4.8
FIVE	35.4	18.2	18.2	24.1	67.0
MEAN NUMBER PER WEEK	3.2	2.6	2.8	2.6	4.3
FIRST GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
ONE	7.1	7.0	9.1	5.4	7.7
TWO	27.8	37.9	29.3	29.0	23.2
THREE	29.4	18.7	32.4	30.8	27.3
FOUR	3.3	2.7	4.6	.9	5.3
FIVE	32.5	33.7	24.6	33.8	36.5
MEAN NUMBER PER WEEK	3.3	3.2	3.1	3.3	3.4
SECOND GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
ONE	7.6	5.6	6.2	9.1	6.9
TWO	25.7	33.4	28.7	21.5	27.5
THREE	32.4	22.1	35.0	32.0	32.7
FOUR	4.5	5.8	8.4	2.7	3.4
FIVE	29.8	33.1	21.7	34.7	29.4
MEAN NUMBER PER WEEK	3.2	3.3	3.1	3.3	3.2
THIRD GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
ONE	5.2	3.5	4.6	6.7	4.0
TWO	22.2	27.9	21.8	18.6	26.5
THREE	34.4	24.8	36.5	33.7	35.5
FOUR	6.4	9.9	10.2	4.9	4.9
FIVE	31.7	33.9	26.9	36.1	29.2
MEAN NUMBER PER WEEK	3.4	3.4	3.3	3.4	3.3
FOURTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
ONE	4.0	3.2	2.6	5.3	3.3
TWO	17.9	24.0	16.3	13.3	24.9
THREE	30.1	25.3	32.4	26.7	34.0
FOUR	11.3	7.0	17.5	9.1	11.1
FIVE	36.8	40.5	31.2	46.5	26.6
MEAN NUMBER PER WEEK	3.6	3.6	3.6	3.8	3.3

TABLE 11.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY TOTAL AND MEAN NUMBER OF PERIODS PER WEEK OF SCIENCE INSTRUCTION, BY GRADE AND BY SCHOOL ENROLLMENT. 1961-62 (CONTINUED)

PERIODS PER WEEK AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
FIFTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
ONE	1.9	3.2	1.8	1.1	3.0
TWO	16.4	16.7	16.1	10.7	25.1
THREE	31.2	31.6	28.4	30.7	34.3
FOUR	11.8	5.7	18.4	10.9	8.5
FIVE	38.7	42.7	35.3	46.6	29.1
MEAN NUMBER PER WEEK	3.7	3.7	3.7	3.9	3.4
SIXTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
ONE	2.3	3.3	1.9	1.2	4.1
TWO	12.9	16.7	14.2	5.9	22.3
THREE	33.7	28.8	28.4	37.1	34.0
FOUR	11.4	9.6	17.7	9.2	9.8
FIVE	39.7	41.7	37.8	46.6	29.8
MEAN NUMBER PER WEEK	3.7	3.7	3.8	3.9	3.4
SEVENTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
ONE	1.3	1.5	.7	.5	2.6
TWO	10.9	8.0	6.4	2.6	23.9
THREE	22.1	8.4	13.9	23.1	25.1
FOUR	4.9	5.4	2.2	2.7	8.8
FIVE	60.9	76.7	76.8	71.1	39.6
MEAN NUMBER PER WEEK	4.1	4.5	4.5	4.4	3.6
EIGHTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
ONE	1.2	1.9	.5	.2	2.5
TWO	11.1	8.3	8.6	2.8	22.3
THREE	24.6	8.1	9.6	23.2	31.6
FOUR	3.7	4.4	3.0	1.4	6.6
FIVE	59.4	77.3	78.3	72.3	36.9
MEAN NUMBER PER WEEK	4.1	4.5	4.5	4.4	3.5

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 12.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS WITH DEPARTMENTALIZED SCIENCE TEACHING, BY GRADE, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

GRADE LEVEL	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
KINDERGARTEN	.1	.0	.2	.0	.0	.3	.0	.0	.0	.0
FIRST	2.6	1.7	6.5	.5	.0	4.6	.0	.0	6.6	.0
SECOND	3.8	4.1	8.7	.9	.0	10.0	1.9	.0	6.6	.0
THIRD	4.8	7.6	9.4	1.1	9.8	14.0	3.1	.9	6.6	.0
FOURTH	12.7	18.2	20.2	7.0	9.8	34.8	17.9	21.2	6.6	.0
FIFTH	26.3	30.1	35.8	19.8	15.5	50.0	34.5	47.5	26.4	.0
SIXTH	46.0	43.8	48.8	45.7	15.5	62.3	48.4	72.8	43.4	28.6
SEVENTH	69.7	71.7	71.7	69.7	15.5	56.1	57.5	74.7	86.8	66.7
EIGHTH	69.1	61.0	54.1	79.3	100.0	43.5	53.9	57.2	67.0	100.0

NOTE. PERCENTAGES DO NOT ADD TO 100 PERCENT BECAUSE OF DUPLICATE RESPONSE.

APPENDIX A

TABLE 13.--MEAN, MEDIAN, AND MODE MINUTES OF INSTRUCTION IN SCIENCE PER WEEK IN PUBLIC ELEMENTARY SCHOOLS, BY GRADE AND BY SCHOOL ENROLLMENT, 1961-62

ITEM AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
KINDERGARTEN					
MEAN	48.7	51.1	47.7	43.9	58.6
MEDIAN	44.5	45.9	45.1	40.2	50.3
MODE	62.3	64.1	62.5	55.9	68.3
FIRST GRADE					
MEAN	66.9	66.4	65.8	70.4	62.1
MEDIAN	55.7	55.4	55.5	58.9	49.7
MODE	68.1	67.6	69.8	68.3	60.0
SECOND GRADE					
MEAN	71.9	72.8	73.6	75.0	64.1
MEDIAN	58.1	62.8	59.1	64.7	50.7
MODE	68.8	69.7	70.2	67.9	67.4
THIRD GRADE					
MEAN	82.6	84.4	90.1	85.4	69.9
MEDIAN	73.7	82.0	86.8	80.0	54.6
MODE	69.6	89.0	70.8	67.8	69.5
FOURTH GRADE					
MEAN	99.9	107.4	112.8	105.1	77.2
MEDIAN	90.7	98.5	105.6	92.7	58.2
MODE	70.1	92.9	94.3	70.7	69.4
FIFTH GRADE					
MEAN	109.2	115.8	120.6	119.7	79.8
MEDIAN	99.9	105.9	115.2	116.8	59.2
MODE	90.7	93.1	111.1	89.8	68.0
SIXTH GRADE					
MEAN	116.1	119.4	128.4	129.0	82.1
MEDIAN	109.9	108.9	121.0	130.3	58.4
MODE	89.2	92.9	109.8	88.2	68.5
SEVENTH GRADE					
MEAN	136.8	183.9	196.7	160.7	79.7
MEDIAN	140.5	223.6	202.6	155.2	58.3
MODE	90.6	89.5	190.2	151.2	69.2
EIGHTH GRADE					
MEAN	135.3	182.1	193.7	160.9	83.8
MEDIAN	134.5	224.3	215.1	154.6	59.5
MODE	73.0	89.7	169.2	150.5	70.7

TABLE 14.-- MEDIAN AND PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY NUMBER OF MINUTES PER WEEK DEVOTED TO SCIENCE TEACHING, BY GRADE, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62

MINUTES PER WEEK AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
KINDERGARTEN										
MEDIAN	44.5	45.9	45.1	40.2	50.3	48.5	38.9	36.7	46.1	46.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
20 AND UNDER	12.4	5.0	8.3	16.3	16.4	6.2	14.2	17.1	6.6	16.4
21 TO 40	30.9	34.0	33.5	34.2	18.1	29.5	38.8	40.8	31.6	24.5
41 TO 60	33.1	40.8	36.2	28.9	31.5	35.6	38.1	19.8	41.7	29.1
61 TO 80	11.0	9.2	12.4	10.4	10.4	17.4	5.6	8.5	6.6	13.6
81 TO 100	9.4	4.9	8.6	9.4	13.1	7.9	2.4	9.3	13.3	10.9
101 TO 120	.7	1.8	.2	.0	2.6	.7	.8	.0	.0	1.4
121 TO 140	.0	.4	.0	.0	.0	.2	.0	.0	.0	.0
141 TO 160	.8	3.4	.6	.6	.0	1.3	.0	4.7	.0	.0
161 TO 180	1.5	.0	.0	.0	7.8	.0	.0	.0	.0	4.1
181 TO 200	.0	.0	.1	.0	.0	.1	.0	.0	.0	.0
201 TO 220	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
221 TO 240	.1	.4	.1	.0	.0	.5	.0	.0	.0	.0
241 TO 260	.0	.0	.1	.0	.0	.3	.0	.0	.0	.0
261 AND OVER	.0	.0	.0	.1	.0	.3	.0	.0	.0	.0

TABLE 14.-- MEDIAN AND PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY NUMBER OF MINUTES PER WEEK DEVOTED TO SCIENCE TEACHING BY GRADE, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62 (CONTINUED)

MINUTES PER WEEK AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
FIRST GRADE										
MEDIAN	55.7	55.4	55.5	58.9	49.7	59.0	53.0	58.1	57.8	53.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
20 AND UNDER	7.1	1.5	5.3	5.8	12.6	2.2	4.4	3.6	7.2	10.7
21 TO 40	19.0	21.7	14.0	17.8	25.7	16.3	23.9	20.0	15.0	19.6
41 TO 60	31.4	35.9	40.9	28.7	25.4	34.0	34.8	29.9	32.1	29.3
61 TO 80	10.9	10.1	10.1	11.6	10.9	15.2	10.0	8.7	7.2	12.9
81 TO 100	16.4	19.8	16.2	19.0	11.1	18.2	16.4	21.2	15.8	14.6
101 TO 120	5.4	2.7	5.7	7.4	1.8	3.6	1.7	5.5	10.4	4.5
121 TO 140	1.4	1.3	1.4	1.8	.9	2.4	1.8	1.2	1.4	1.1
141 TO 160	3.6	5.3	4.8	2.8	3.4	5.0	4.4	8.3	3.0	1.7
161 TO 180	3.8	.2	.6	3.6	8.2	.7	1.0	.0	6.3	5.6
181 TO 200	.2	.3	.2	.3	.0	.4	.3	.7	.0	.0
201 TO 220	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
221 TO 240	.6	.7	.6	1.0	.1	1.2	.7	.7	1.4	.0
241 TO 260	.1	.2	.1	.1	.0	.3	.3	.0	.0	.0
261 AND OVER	.1	.3	.0	.2	.0	.5	.3	.0	.0	.0
SECOND GRADE										
MEDIAN	58.1	62.8	59.1	64.7	50.7	65.5	57.3	68.7	75.7	52.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
20 AND UNDER	5.8	.8	4.0	5.2	9.8	1.8	3.5	3.2	5.8	8.7
21 TO 40	16.6	15.9	10.1	17.9	21.1	12.4	20.3	12.9	11.9	20.1
41 TO 60	31.3	31.8	38.5	24.0	37.5	32.0	31.2	29.8	24.5	35.4
61 TO 80	10.6	13.0	8.6	13.6	6.7	15.1	10.6	10.3	10.2	9.8
81 TO 100	15.9	25.9	18.5	16.2	10.5	20.3	19.8	23.2	16.8	10.3
101 TO 120	6.3	3.3	7.8	8.1	1.8	5.2	2.6	6.1	13.2	4.3
121 TO 140	3.4	1.0	4.2	4.6	.9	2.5	3.2	2.7	2.8	4.3
141 TO 160	4.5	5.4	5.1	5.0	2.5	6.0	5.7	9.8	5.8	1.1
161 TO 180	4.0	.3	1.6	3.6	8.1	.8	1.0	.0	7.6	5.4
181 TO 200	.4	1.4	.8	.3	.0	1.6	.8	.7	.0	.0
201 TO 220	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
221 TO 240	.7	.5	.7	.9	.1	1.3	.3	1.3	1.4	.0
241 TO 260	.1	.2	.1	.1	.0	.3	.3	.0	.0	.0
261 AND OVER	.4	.5	.0	.3	.9	.6	.7	.0	.0	.5
THIRD GRADE										
MEDIAN	73.7	82.0	86.8	80.0	54.6	83.5	75.2	85.1	88.1	58.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
20 AND UNDER	5.0	.4	2.6	4.1	10.0	.9	1.8	.7	5.8	8.4
21 TO 40	12.3	12.1	6.7	14.9	13.5	8.6	12.5	8.6	10.8	15.7
41 TO 60	26.4	22.2	26.2	20.5	37.7	20.6	28.7	24.0	23.1	29.4
61 TO 80	9.5	13.3	8.0	10.8	8.0	16.2	9.5	11.0	3.3	10.5
81 TO 100	18.2	27.8	20.8	18.2	13.8	23.7	20.8	24.8	20.5	12.5
101 TO 120	6.9	8.2	10.3	7.1	2.9	8.1	8.5	11.2	12.6	1.6
121 TO 140	4.8	3.8	8.7	5.0	.8	5.9	2.6	1.9	2.8	7.3
141 TO 160	10.1	8.4	12.2	13.2	2.9	10.6	10.8	13.4	11.6	7.8
161 TO 180	4.6	1.3	2.1	4.2	8.5	1.0	1.5	.6	9.0	5.7
181 TO 200	.8	.8	1.1	.5	.9	1.3	1.4	1.6	.0	.5
201 TO 220	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
221 TO 240	.8	.9	.7	1.2	.1	1.2	.9	1.6	1.4	.0
241 TO 260	.1	.2	.1	.1	.0	.3	.3	.0	.0	.0
261 AND OVER	.5	.8	.6	.2	.9	1.4	.5	.6	.0	.5
FOURTH GRADE										
MEDIAN	90.7	98.5	105.6	92.7	58.2	99.4	97.5	97.7	107.3	63.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
20 AND UNDER	3.0	.0	.0	2.9	6.5	.2	.2	.1	1.7	6.2
21 TO 40	8.4	6.2	5.9	6.5	14.3	6.0	6.5	1.7	10.1	10.9
41 TO 60	21.3	14.5	10.0	21.6	33.0	12.5	17.2	20.5	8.6	31.7
61 TO 80	7.4	8.8	4.9	7.2	9.9	9.6	4.7	6.7	5.8	8.8
81 TO 100	19.6	22.8	25.2	19.3	14.1	22.9	25.2	24.5	18.1	15.8
101 TO 120	8.9	14.3	16.1	7.1	4.0	11.1	14.6	10.1	16.3	2.1
121 TO 140	4.0	3.8	4.6	4.8	2.0	6.1	5.6	3.8	.3	4.7
141 TO 160	15.4	20.1	21.9	18.1	3.8	18.6	15.2	19.9	18.1	12.0
161 TO 180	4.3	2.0	4.5	1.7	9.2	4.5	3.3	1.2	9.5	3.1
181 TO 200	1.8	3.2	2.1	1.7	1.4	2.9	3.1	4.0	1.5	.5
201 TO 220	1.6	.0	1.2	2.9	.0	.1	.0	.0	1.5	3.1
221 TO 240	2.0	2.0	3.0	2.1	.9	2.0	3.4	5.8	1.5	.5
241 TO 260	.2	.3	.0	.4	.0	.2	.3	.6	.3	.0
261 AND OVER	2.1	2.0	.7	3.7	.9	3.3	.5	1.2	6.6	.5

TABLE 14.-- MEDIAN AND PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY NUMBER OF MINUTES PER WEEK DEVOTED TO SCIENCE TEACHING BY GRADE, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62 (CONTINUED)

MINUTES PER WEEK AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
FIFTH GRADE										
MEDIAN	99.9	105.9	115.2	116.8	59.2	107.4	105.2	114.8	115.5	76.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
20 AND UNDER	1.7	.0	.0	.0	6.5	.2	.1	.1	1.9	3.1
21 TO 40	7.7	2.6	4.2	5.1	16.2	4.1	2.7	1.6	7.2	12.5
41 TO 60	17.8	14.4	8.6	16.5	29.1	10.5	15.4	11.7	10.8	25.6
61 TO 80	7.1	3.8	2.4	9.7	7.8	5.3	3.7	4.8	4.1	11.0
81 TO 100	16.3	25.8	20.2	12.5	17.0	26.0	24.9	22.9	10.4	11.1
101 TO 120	9.9	12.8	19.8	7.7	3.9	11.5	14.2	12.3	20.8	2.1
121 TO 140	4.4	6.6	4.7	5.8	1.4	6.7	7.5	5.4	1.5	3.7
141 TO 160	20.5	21.8	25.2	27.2	4.6	19.2	16.5	23.5	19.3	22.0
161 TO 180	5.0	3.1	7.1	2.5	7.8	5.0	5.5	3.7	11.9	2.1
181 TO 200	3.1	3.3	3.4	2.9	3.1	4.1	4.5	5.4	3.2	1.6
201 TO 220	1.4	.2	.0	3.2	.0	.2	.0	.6	.0	3.1
221 TO 240	2.1	2.5	3.4	1.5	1.7	3.0	4.3	5.3	.0	1.0
241 TO 260	.5	.8	.2	1.0	.0	.3	.9	.6	.3	.5
261 AND OVER	2.6	2.3	.8	4.6	.9	3.9	.0	2.0	8.7	.5
SIXTH GRADE										
MEDIAN	109.9	108.9	121.0	130.3	58.4	109.1	109.6	133.2	138.6	88.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
20 AND UNDER	1.8	.0	.0	.0	6.8	.2	.1	.0	2.0	3.2
21 TO 40	5.5	2.3	2.6	1.1	16.2	3.6	2.3	.1	4.7	9.1
41 TO 60	16.5	13.6	8.0	13.6	30.3	9.3	13.4	11.4	11.1	23.5
61 TO 80	7.1	2.9	3.3	8.6	9.3	5.5	4.0	4.8	1.7	11.7
81 TO 100	14.4	26.1	20.3	12.3	9.8	26.6	24.1	19.8	12.7	6.6
101 TO 120	10.0	12.0	15.7	8.8	6.4	11.2	13.4	9.7	13.8	6.9
121 TO 140	7.8	4.5	7.3	11.6	2.4	6.7	5.9	6.6	4.1	10.7
141 TO 160	19.6	22.6	24.4	26.0	3.8	16.9	15.8	24.1	23.7	18.7
161 TO 180	4.3	4.5	4.7	2.8	6.5	3.9	7.6	3.9	9.5	1.1
181 TO 200	2.9	5.5	3.6	2.4	2.4	6.8	3.3	4.1	3.4	1.1
201 TO 220	2.1	.2	.0	3.3	2.6	.2	.0	.7	.0	4.8
221 TO 240	4.2	2.8	7.4	3.4	2.7	4.9	6.6	10.1	3.4	1.6
241 TO 260	.7	.5	.7	1.2	.0	.2	2.1	.7	.3	.5
261 AND OVER	3.1	2.5	2.1	5.0	.9	4.1	1.2	4.1	9.5	.5
SEVENTH GRADE										
MEDIAN	140.5	223.6	202.6	155.2	58.3	158.1	158.6	151.8	186.2	118.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
20 AND UNDER	1.2	.0	.0	.0	3.3	.0	.2	.0	.0	1.8
21 TO 40	6.5	.0	.0	.0	17.8	.2	2.9	.0	.0	9.5
41 TO 60	13.5	12.2	.8	2.6	32.5	5.2	8.5	7.5	4.6	17.2
61 TO 80	7.8	3.4	.3	6.0	13.3	4.1	2.3	.3	.0	11.2
81 TO 100	8.6	6.4	6.9	9.7	8.0	11.1	11.9	11.4	11.5	7.1
101 TO 120	4.9	5.0	6.9	2.9	6.8	15.7	7.2	6.2	5.7	3.6
121 TO 140	7.5	1.4	6.2	12.0	2.5	4.4	6.1	6.6	5.7	8.3
141 TO 160	14.7	7.8	11.8	22.8	6.0	10.7	12.0	31.7	9.7	13.6
161 TO 180	7.7	4.4	2.2	13.4	2.5	1.7	8.9	3.5	5.7	8.9
181 TO 200	7.5	7.7	14.0	10.1	1.9	14.4	7.6	8.0	24.2	4.1
201 TO 220	1.3	.0	8.4	.4	.0	2.5	1.1	.0	9.7	.0
221 TO 240	8.1	10.4	15.0	9.7	3.3	15.0	13.1	13.4	9.7	5.9
241 TO 260	2.7	36.9	3.1	1.5	1.1	8.1	8.5	.0	7.7	1.2
261 AND OVER	8.8	4.4	24.3	9.8	1.1	7.1	9.6	11.4	5.7	7.7
EIGHTH GRADE										
MEDIAN	134.5	224.3	215.1	154.6	59.5	157.5	177.9	152.9	182.2	122.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
20 AND UNDER	1.3	.0	.0	.0	3.4	.0	.3	.0	.0	1.8
21 TO 40	5.3	.0	.0	.0	13.8	.2	2.2	.0	.0	7.3
41 TO 60	14.6	14.9	.4	1.8	34.5	4.7	6.9	7.2	7.8	17.6
61 TO 80	9.0	2.5	.8	6.7	14.7	7.4	2.0	.0	.0	12.1
81 TO 100	9.9	8.2	8.3	10.1	10.3	15.6	11.5	14.0	13.9	8.5
101 TO 120	4.3	3.1	8.1	4.0	3.9	10.8	10.7	8.0	12.8	1.8
121 TO 140	7.8	.6	3.8	13.1	2.8	1.8	5.6	7.0	7.0	8.5
141 TO 160	12.0	7.5	8.0	20.3	3.2	11.1	5.9	22.5	7.0	12.1
161 TO 180	7.4	1.2	1.0	13.1	2.4	1.3	5.6	5.5	.0	9.1
181 TO 200	6.6	10.5	11.3	9.1	2.0	14.6	10.0	7.6	17.6	4.2
201 TO 220	1.3	.0	11.4	.2	.0	.0	1.7	.0	11.7	.0
221 TO 240	11.4	7.5	34.5	10.1	6.9	15.8	13.5	13.6	5.9	11.5
241 TO 260	3.0	42.1	4.8	1.8	1.1	10.0	10.8	1.8	9.3	1.2
261 AND OVER	5.9	1.8	7.6	9.6	1.1	6.5	13.4	12.8	7.0	4.2

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 15.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS IN WHICH SCIENCE IS TAUGHT BY GIVEN PERSONS, BY GRADE AND BY SCHOOL ENROLLMENT. 1961-1962

WHO TEACHES SCIENCE AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
CLASSROOM TEACHER WITH NO HELP FROM AN ELEMENTARY SCIENCE SPECIALIST	81.6	46.2	68.4	86.5	92.1
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST ATTACHED TO SCHOOL STAFF	5.7	13.2	8.8	3.9	4.3
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST FROM THE CENTRAL OFFICE STAFF	6.9	28.3	13.1	3.9	2.5
SPECIAL SCIENCE TEACHERS ON THE SCHOOL STAFF	3.2	7.3	5.4	3.1	.4
SPECIAL SCIENCE TEACHERS ATTACHED TO A CENTRAL OFFICE STAFF	.1	.9	.0	.0	.0
CLASSROOM TEACHER WITH SPECIAL COMPETENCE IN SCIENCE TRADES CLASSES WITH OTHER TEACHERS	1.6	1.8	2.4	1.7	.7
TELEVISION	.9	2.4	1.8	.8	.0
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
CLASSROOM TEACHER WITH NO HELP FROM AN ELEMENTARY SCIENCE SPECIALIST	84.0	56.0	75.4	91.8	100.0
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST ATTACHED TO SCHOOL STAFF	5.5	11.5	9.7	2.5	.0
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST FROM THE CENTRAL OFFICE STAFF	10.1	31.2	14.4	5.5	.0
SPECIAL SCIENCE TEACHERS ON THE SCHOOL STAFF	.0	.2	.0	.0	.0
SPECIAL SCIENCE TEACHERS ATTACHED TO A CENTRAL OFFICE STAFF	.0	.0	.0	.0	.0
CLASSROOM TEACHER WITH SPECIAL COMPETENCE IN SCIENCE TRADES CLASSES WITH OTHER TEACHERS	.0	.0	.0	.0	.0
TELEVISION	.4	1.1	.5	.2	.0
FIRST GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
CLASSROOM TEACHER WITH NO HELP FROM AN ELEMENTARY SCIENCE SPECIALIST	86.5	55.3	75.5	93.9	91.5
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST ATTACHED TO SCHOOL STAFF	5.0	13.0	8.7	1.5	5.6
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST FROM THE CENTRAL OFFICE STAFF	7.5	30.0	13.2	4.1	2.9
SPECIAL SCIENCE TEACHERS ON THE SCHOOL STAFF	.1	.7	.2	.0	.0
SPECIAL SCIENCE TEACHERS ATTACHED TO A CENTRAL OFFICE STAFF	.0	.0	.0	.0	.0
CLASSROOM TEACHER WITH SPECIAL COMPETENCE IN SCIENCE TRADES CLASSES WITH OTHER TEACHERS	.6	.2	1.9	.2	.0
TELEVISION	.3	1.0	.4	.2	.0
SECOND GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
CLASSROOM TEACHER WITH NO HELP FROM AN ELEMENTARY SCIENCE SPECIALIST	86.6	54.3	75.2	94.0	91.6
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST ATTACHED TO SCHOOL STAFF	4.8	12.9	8.3	1.5	5.5
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST FROM THE CENTRAL OFFICE STAFF	7.5	29.8	13.5	4.1	2.9
SPECIAL SCIENCE TEACHERS ON THE SCHOOL STAFF	.3	1.5	.6	.0	.0
SPECIAL SCIENCE TEACHERS ATTACHED TO A CENTRAL OFFICE STAFF	.0	.0	.0	.0	.0
CLASSROOM TEACHER WITH SPECIAL COMPETENCE IN SCIENCE TRADES CLASSES WITH OTHER TEACHERS	.6	.2	1.9	.2	.0
TELEVISION	.3	1.3	.4	.2	.0

TABLE 15.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS IN WHICH SCIENCE IS TAUGHT BY GIVEN PERSONS BY GRADE AND BY SCHOOL ENROLLMENT. 1961-1962 (CONTINUED)

WHO TEACHES SCIENCE AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
THIRD GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
CLASSROOM TEACHER WITH NO HELP FROM AN ELEMENTARY SCIENCE SPECIALIST	84.4	49.3	73.7	90.9	90.6
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST ATTACHED TO SCHOOL STAFF	6.2	12.8	8.4	4.3	6.0
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST FROM THE CENTRAL OFFICE STAFF	7.6	32.2	13.4	4.3	2.7
SPECIAL SCIENCE TEACHERS ON THE SCHOOL STAFF	.3	2.4	.8	.0	.0
SPECIAL SCIENCE TEACHERS ATTACHED TO A CENTRAL OFFICE STAFF	.1	1.3	.0	.0	.0
CLASSROOM TEACHER WITH SPECIAL COMPETENCE IN SCIENCE TRADES CLASSES WITH OTHER TEACHERS	.8	.2	2.0	.2	.7
TELEVISION	.7	1.9	1.8	.3	.0
FOURTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
CLASSROOM TEACHER WITH NO HELP FROM AN ELEMENTARY SCIENCE SPECIALIST	82.6	46.8	69.3	89.6	90.6
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST ATTACHED TO SCHOOL STAFF	6.8	12.9	9.8	4.8	5.9
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST FROM THE CENTRAL OFFICE STAFF	7.6	30.9	13.7	4.3	2.6
SPECIAL SCIENCE TEACHERS ON THE SCHOOL STAFF	.9	4.4	2.1	.3	.0
SPECIAL SCIENCE TEACHERS ATTACHED TO A CENTRAL OFFICE STAFF	.1	1.5	.0	.0	.0
CLASSROOM TEACHER WITH SPECIAL COMPETENCE IN SCIENCE TRADES CLASSES WITH OTHER TEACHERS	1.0	.8	2.4	.2	.9
TELEVISION	1.1	2.7	2.6	.7	.0
FIFTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
CLASSROOM TEACHER WITH NO HELP FROM AN ELEMENTARY SCIENCE SPECIALIST	80.4	42.2	66.5	86.9	90.3
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST ATTACHED TO SCHOOL STAFF	6.2	13.1	8.3	4.8	5.2
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST FROM THE CENTRAL OFFICE STAFF	7.6	29.3	14.2	4.3	2.7
SPECIAL SCIENCE TEACHERS ON THE SCHOOL STAFF	2.2	6.8	3.4	1.9	.8
SPECIAL SCIENCE TEACHERS ATTACHED TO A CENTRAL OFFICE STAFF	.1	1.8	.0	.0	.0
CLASSROOM TEACHER WITH SPECIAL COMPETENCE IN SCIENCE TRADES CLASSES WITH OTHER TEACHERS	1.6	2.2	3.3	.9	.9
TELEVISION	1.8	4.5	4.3	1.2	.0

TABLE 15.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS IN WHICH SCIENCE IS TAUGHT BY GIVEN PERSONS BY GRADE AND BY SCHOOL ENROLLMENT. 1961-1962 (CONTINUED)

WHO TEACHES SCIENCE AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
SIXTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
CLASSROOM TEACHER WITH NO HELP FROM AN ELEMENTARY SCIENCE SPECIALIST	77.0	40.0	63.5	81.5	89.8
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST ATTACHED TO SCHOOL STAFF	6.4	9.0	9.6	4.8	5.5
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST FROM THE CENTRAL OFFICE STAFF	7.6	29.0	14.4	4.1	2.8
SPECIAL SCIENCE TEACHERS ON THE SCHOOL STAFF	3.4	10.5	6.1	2.5	.9
SPECIAL SCIENCE TEACHERS ATTACHED TO A CENTRAL OFFICE STAFF	.1	1.9	.0	.0	.0
CLASSROOM TEACHER WITH SPECIAL COMPETENCE IN SCIENCE TRADES CLASSES WITH OTHER TEACHERS	3.3	4.9	3.3	4.6	1.0
TELEVISION	2.1	4.7	3.2	2.3	.0
SEVENTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
CLASSROOM TEACHER WITH NO HELP FROM AN ELEMENTARY SCIENCE SPECIALIST	72.9	15.9	31.2	69.0	97.6
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST ATTACHED TO SCHOOL STAFF	4.4	21.2	6.5	6.0	.0
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST FROM THE CENTRAL OFFICE STAFF	1.5	7.1	3.7	1.4	.2
SPECIAL SCIENCE TEACHERS ON THE SCHOOL STAFF	15.7	43.1	50.4	15.6	1.1
SPECIAL SCIENCE TEACHERS ATTACHED TO A CENTRAL OFFICE STAFF	.1	.5	.3	.0	.0
CLASSROOM TEACHER WITH SPECIAL COMPETENCE IN SCIENCE TRADES CLASSES WITH OTHER TEACHERS	4.6	10.0	7.4	6.2	1.1
TELEVISION	1.0	2.1	.6	1.7	.0
EIGHTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
CLASSROOM TEACHER WITH NO HELP FROM AN ELEMENTARY SCIENCE SPECIALIST	72.9	13.0	29.8	68.5	94.2
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST ATTACHED TO SCHOOL STAFF	4.6	27.2	8.4	6.2	.0
CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST FROM THE CENTRAL OFFICE STAFF	2.5	3.4	3.8	1.5	3.4
SPECIAL SCIENCE TEACHERS ON THE SCHOOL STAFF	15.8	50.0	55.0	17.2	1.1
SPECIAL SCIENCE TEACHERS ATTACHED TO A CENTRAL OFFICE STAFF	.0	.0	.4	.0	.0
CLASSROOM TEACHER WITH SPECIAL COMPETENCE IN SCIENCE TRADES CLASSES WITH OTHER TEACHERS	4.0	6.4	2.3	6.4	1.2
TELEVISION	.1	.0	.4	.2	.0

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 16.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS WITH SCIENCE CONSULTANT HELP AVAILABLE, BY SCHOOL ENROLLMENT AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

ITEM	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AVAILABLE (YES)	41.8	83.1	64.2	39.1	19.8	88.0	63.1	45.4	47.3	18.8
NOT AVAILABLE (NO)	58.2	16.9	35.8	60.9	80.2	12.0	36.9	54.6	52.7	81.2

TABLE 17.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS WITH SCIENCE CONSULTANT HELP AVAILABLE, BY TYPE OF HELP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

TYPES OF CONSULTANT HELP	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
(1) GENERAL ELEMENTARY SUPERVISOR (GENERAL KNOWLEDGE)	39.6	34.8	48.6	32.0	41.6	38.8	59.2	54.0	35.9	11.0
(2) GENERAL ELEMENTARY SUPERVISOR (SPECIAL COMPETENCE)	12.8	14.8	9.4	14.2	16.6	20.5	11.9	7.5	11.9	10.2
(3) ELEMENTARY SCIENCE CONSULTANT	15.1	39.4	16.9	10.5	5.6	44.1	18.7	2.6	1.7	2.5
(4) CLASSROOM TEACHER WITH SPECIAL SCIENCE COMPETENCE	21.1	33.1	25.0	18.8	8.3	18.7	19.2	31.0	32.3	5.1
(5) HIGH SCHOOL SCIENCE TEACHER	27.0	8.7	19.2	46.1	4.7	2.9	11.2	26.7	39.2	59.3
SCHOOLS WITH A COMBINATION OF AND 2 ABOVE	.5	1.0	.9	.1	.2	1.6	.6	.0	.0	.0
SCHOOLS WITH A COMBINATION OF 1 AND 3 ABOVE	1.9	5.4	2.6	.9	.5	6.8	1.9	.0	.0	.0
SCHOOLS WITH A COMBINATION OF 3 AND 4 ABOVE	3.3	11.6	3.5	2.0	.0	8.8	4.2	.0	1.7	.0
SCHOOLS WITH A COMBINATION OF 1, 3, AND 5 ABOVE	.1	.2	.0	.1	.0	.3	.0	.0	.0	.0
OTHER	16.3	10.2	17.1	12.2	30.7	16.2	16.9	7.6	15.3	22.9

NOTE. PERCENTAGES DO NOT ADD TO 100 PERCENT BECAUSE OF DUPLICATE RESPONSE.

TABLE 18.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS THAT USE CONSULTANTS, BY FREQUENCY, BY GRADE GROUPS AND SCHOOL ENROLLMENT. 1961-62

FREQUENCY AND GRADE GROUP	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
GRADES K TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	7.2	12.6	7.4	6.8	3.9
OCCASIONALLY	38.1	34.7	36.8	34.4	55.6
RARELY OR NEVER	54.7	52.6	55.8	58.8	40.5
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	9.1	16.4	10.8	7.4	3.8
OCCASIONALLY	49.7	43.0	48.8	46.7	65.9
RARELY OR NEVER	41.2	40.6	40.4	45.9	30.3
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	17.6	20.0	27.1	16.9	5.9
OCCASIONALLY	46.9	30.7	34.1	50.4	62.7
RARELY OR NEVER	35.5	49.3	38.8	32.7	31.5

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 19.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING CONSULTANTS IN VARIOUS WAYS, BY FREQUENCY, BY GRADE GROUP, AND BY SCHOOL ENROLLMENT. 1961-62

A. PLANNING OR CONSULTING FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	14.5	20.1	14.5	16.0	4.8
OCCASIONALLY	48.4	41.1	46.7	46.6	65.4
RARELY OR NEVER	37.1	38.8	38.8	37.4	29.8
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	12.5	13.3	10.1	16.3	.0
OCCASIONALLY	39.7	37.1	40.5	41.9	5.4
RARELY OR NEVER	47.9	49.6	49.4	41.8	94.6
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	14.6	18.0	15.4	16.5	4.4
OCCASIONALLY	46.1	45.9	46.2	41.3	60.1
RARELY OR NEVER	39.3	36.1	38.4	42.2	35.5
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	15.7	25.9	16.8	15.8	4.5
OCCASIONALLY	53.5	41.3	52.3	50.9	74.4
RARELY OR NEVER	30.8	32.8	30.9	33.4	21.1
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	13.5	23.5	13.3	14.9	6.5
OCCASIONALLY	52.0	35.8	42.3	53.4	67.5
RARELY OR NEVER	34.5	40.7	44.4	31.7	25.9

B. TEACHING A SCIENCE LESSON FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	7.3	7.1	7.8	8.1	3.2
OCCASIONALLY	20.9	19.1	17.7	16.8	45.2
RARELY OR NEVER	71.8	73.9	74.5	75.2	51.6
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	4.6	1.8	1.0	11.6	.0
OCCASIONALLY	10.6	15.7	9.9	9.8	.0
RARELY OR NEVER	84.8	82.5	89.1	78.6	100.0
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	4.6	5.2	3.4	7.0	.6
OCCASIONALLY	21.9	20.3	19.9	17.7	40.9
RARELY OR NEVER	73.5	74.5	76.7	75.3	58.5
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	8.5	10.3	10.5	7.5	4.4
OCCASIONALLY	25.6	23.5	22.9	19.3	54.2
RARELY OR NEVER	65.8	66.2	66.6	73.2	41.4
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	13.7	14.0	29.4	8.4	5.9
OCCASIONALLY	19.4	10.0	9.3	15.5	44.0
RARELY OR NEVER	66.9	75.9	61.3	76.2	50.1

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 19.— PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING CONSULTANTS IN VARIOUS WAYS BY FREQUENCY, BY GRADE GROUP, AND BY SCHOOL ENROLLMENT, 1961-62 (CONTINUED)

C. INTRODUCING SCIENCE UNITS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	6.3	4.1	5.7	6.8	8.7
OCCASIONALLY	14.1	20.3	12.7	11.5	21.2
RARELY OR NEVER	79.6	75.6	81.6	81.7	70.1
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	4.9	2.3	.9	12.2	.0
OCCASIONALLY	7.0	11.9	7.4	4.3	3.2
RARELY OR NEVER	88.1	85.8	91.6	83.5	96.8
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	4.3	4.6	1.8	6.1	5.5
OCCASIONALLY	14.0	21.2	14.0	12.1	14.3
RARELY OR NEVER	81.7	74.2	84.2	81.9	80.1
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	7.6	5.9	9.8	5.3	9.4
OCCASIONALLY	17.2	23.7	15.0	15.8	22.5
RARELY OR NEVER	75.2	70.5	75.2	78.9	68.1
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	10.0	1.7	15.7	6.6	13.6
OCCASIONALLY	15.4	26.0	11.7	7.7	32.1
RARELY OR NEVER	74.6	72.4	72.6	85.7	54.3

D. PROVIDING MATERIALS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	37.4	34.8	30.1	43.8	41.7
OCCASIONALLY	35.2	30.7	41.8	26.7	45.6
RARELY OR NEVER	27.4	34.5	28.1	29.5	12.7
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	29.3	26.1	21.0	44.8	3.2
OCCASIONALLY	34.0	33.8	41.9	21.7	46.9
RARELY OR NEVER	36.7	40.0	37.2	33.5	49.9
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	32.0	35.6	27.2	33.4	38.3
OCCASIONALLY	40.4	32.7	43.9	36.8	47.4
RARELY OR NEVER	27.6	31.7	28.8	29.8	14.4
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	40.6	40.5	35.7	45.8	39.0
OCCASIONALLY	36.1	31.3	42.6	25.5	52.8
RARELY OR NEVER	23.4	28.2	21.7	28.7	8.3
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	52.5	34.5	40.8	61.1	55.9
OCCASIONALLY	21.4	16.3	31.6	11.7	32.0
RARELY OR NEVER	26.0	49.2	27.7	27.2	12.1

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 19.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING CONSULTANTS IN VARIOUS WAYS BY FREQUENCY, BY GRADE GROUP, AND BY SCHOOL ENROLLMENT. 1961-62 (CONTINUED)

E. HELPING PLAN FIELD TRIPS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	11.4	8.9	10.9	14.8	4.5
OCCASIONALLY	18.3	24.4	16.6	14.7	29.6
RARELY OR NEVER	70.2	66.7	72.5	70.4	65.9
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	10.4	6.5	10.3	13.2	.0
OCCASIONALLY	12.0	22.9	12.9	6.1	3.2
RARELY OR NEVER	77.6	70.6	76.9	80.7	96.8
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	8.0	10.6	8.9	8.9	.6
OCCASIONALLY	19.6	25.5	18.7	15.1	31.2
RARELY OR NEVER	72.4	63.9	72.5	76.0	68.2
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	14.5	11.0	13.5	17.3	11.8
OCCASIONALLY	18.0	23.6	16.6	16.5	21.8
RARELY OR NEVER	67.5	65.4	69.9	66.2	66.5
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	13.7	2.8	10.2	23.9	.3
OCCASIONALLY	23.6	27.1	18.0	17.7	42.0
RARELY OR NEVER	62.7	70.1	71.8	58.4	57.8

F. EVALUATION OF SCIENCE TEACHING FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	10.7	7.7	9.8	14.2	4.8
OCCASIONALLY	28.4	36.9	30.1	26.8	20.8
RARELY OR NEVER	61.0	55.3	60.1	59.0	74.4
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	8.4	4.6	7.0	12.7	.0
OCCASIONALLY	22.3	35.0	22.3	14.6	50.1
RARELY OR NEVER	69.3	60.3	70.7	72.7	49.9
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	8.0	8.5	8.7	8.3	4.5
OCCASIONALLY	30.8	35.1	29.9	34.1	20.1
RARELY OR NEVER	61.3	56.4	61.4	57.7	75.4
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	12.1	9.6	11.0	16.3	4.6
OCCASIONALLY	30.0	41.0	34.4	27.4	16.1
RARELY OR NEVER	58.0	49.4	54.6	56.3	79.3
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	16.6	6.7	15.6	23.9	6.2
OCCASIONALLY	25.8	34.5	32.9	20.3	25.3
RARELY OR NEVER	57.6	58.8	51.5	55.9	68.5

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 19.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING CONSULTANTS IN VARIOUS WAYS BY FREQUENCY, BY GRADE GROUP, AND BY SCHOOL ENROLLMENT, 1961-62 (CONTINUED)

G. DEMONSTRATION TEACHING FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS 800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	5.3	8.0	5.3	6.0	.6
OCCASIONALLY	28.7	28.2	31.2	28.5	22.2
RARELY OR NEVER	66.0	63.8	63.5	65.5	77.2
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	3.9	2.3	1.0	9.0	.0
OCCASIONALLY	25.7	24.3	23.3	31.4	3.2
RARELY OR NEVER	70.4	73.4	75.6	59.6	96.8
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	4.1	5.4	2.9	6.0	.6
OCCASIONALLY	28.6	29.1	32.7	26.3	23.9
RARELY OR NEVER	67.3	65.5	64.5	67.7	75.5
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	7.0	13.1	8.1	6.5	.7
OCCASIONALLY	30.1	32.3	33.9	27.3	25.6
RARELY OR NEVER	62.9	54.6	58.0	66.2	73.8
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	5.8	13.0	13.7	2.4	.5
OCCASIONALLY	29.0	22.3	33.8	33.2	16.7
RARELY OR NEVER	65.2	64.7	52.5	64.3	82.8

H. ORGANIZING OR DIRECTING WORKSHOP FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS 800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	9.2	13.8	11.7	9.2	.7
OCCASIONALLY	34.5	33.9	43.2	27.2	31.5
RARELY OR NEVER	56.3	52.4	45.1	64.6	67.5
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	9.6	10.7	10.8	8.0	.0
OCCASIONALLY	36.2	33.5	41.9	31.2	3.2
RARELY OR NEVER	54.2	55.9	47.4	60.7	96.8
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	8.6	15.0	11.3	7.2	.4
OCCASIONALLY	36.7	34.3	45.3	29.3	36.5
RARELY OR NEVER	54.8	50.7	43.4	63.5	63.1
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	10.4	16.3	13.2	9.2	1.0
OCCASIONALLY	36.1	37.2	46.4	29.2	26.2
RARELY OR NEVER	53.5	46.6	40.5	61.6	72.9
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	7.2	9.5	9.6	8.5	.7
OCCASIONALLY	23.4	23.8	28.1	15.3	35.2
RARELY OR NEVER	69.3	66.6	62.3	76.3	64.1

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 19.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING CONSULTANTS IN VARIOUS WAYS BY FREQUENCY, BY GRADE GROUP, AND BY SCHOOL ENROLLMENT. 1961-62 (CONTINUED)

I. WORKING WITH SMALL GROUPS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	5.1	6.0	3.9	3.6	12.4
OCCASIONALLY	17.4	15.2	12.1	15.0	42.5
RARELY OR NEVER	77.6	78.8	84.0	81.4	45.1
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	2.3	1.0	.7	5.3	.0
OCCASIONALLY	8.9	16.2	8.6	6.6	.0
RARELY OR NEVER	88.8	82.8	90.7	88.1	100.0
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	3.6	2.7	2.1	3.8	7.5
OCCASIONALLY	16.4	16.2	12.0	9.0	50.5
RARELY OR NEVER	80.0	81.1	85.9	87.2	41.9
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	5.2	9.8	4.5	3.6	7.9
OCCASIONALLY	21.4	16.0	16.9	16.8	52.7
RARELY OR NEVER	73.4	74.1	78.6	79.6	39.4
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	11.8	14.6	15.4	1.6	28.3
OCCASIONALLY	19.8	7.8	3.5	31.4	19.7
RARELY OR NEVER	68.4	77.5	81.1	67.1	52.0

TABLE 20.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS IN WHICH HEALTH IS TAUGHT PRIMARILY BY A GIVEN METHOD BY GRADE GROUP AND BY SCHOOL ENROLLMENT. 1961-62

METHOD AND GRADE GROUP	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT SEPARATELY	28.3	25.9	22.7	30.8	36.0
TAUGHT WITH SCIENCE	19.7	7.8	24.5	14.4	26.8
TAUGHT WITH PHYSICAL EDUCATION	2.4	5.5	3.1	2.1	.0
INTEGRATED WITH ALL SUBJECTS	44.2	45.2	45.1	48.0	34.5
OTHER	1.1	5.3	1.1	.6	.0
COMBINATION	4.2	10.3	3.5	4.1	2.7
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT SEPARATELY	37.7	37.1	27.9	38.2	45.5
TAUGHT WITH SCIENCE	24.5	15.9	34.4	20.7	23.4
TAUGHT WITH PHYSICAL EDUCATION	4.4	7.3	3.9	5.7	2.3
INTEGRATED WITH ALL SUBJECTS	26.5	25.9	25.6	29.8	22.1
OTHER	.3	.8	.7	.2	.0
COMBINATION	6.6	12.9	7.4	5.4	6.7
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT SEPARATELY	45.3	40.7	35.3	52.0	44.4
TAUGHT WITH SCIENCE	27.9	16.9	35.3	26.4	25.7
TAUGHT WITH PHYSICAL EDUCATION	4.1	12.2	5.8	2.9	2.9
INTEGRATED WITH ALL SUBJECTS	14.8	14.6	14.4	11.5	20.1
OTHER	.3	1.0	.8	.2	.0
COMBINATION	7.7	14.7	8.5	7.0	6.8
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
TAUGHT SEPARATELY	38.0	36.5	31.8	37.8	40.3
TAUGHT WITH SCIENCE	29.0	15.4	46.2	24.1	30.0
TAUGHT WITH PHYSICAL EDUCATION	9.8	11.1	12.7	15.2	2.7
INTEGRATED WITH ALL SUBJECTS	13.3	7.8	4.3	9.9	20.5
OTHER	.0	.5	.1	.0	.0
COMBINATION	9.9	28.7	4.8	13.0	6.5

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 21.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING VARIOUS RESOURCES FOR SUGGESTIONS OF WHAT TO STUDY IN SCIENCE, BY FREQUENCY, BY GRADE GROUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62

A. STATE GUIDE OR COURSE OF STUDY FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	27.1	20.5	16.2	22.9	43.7	17.8	22.0	26.9	18.5	34.4
OCCASIONALLY	34.7	23.6	37.4	36.7	31.6	20.4	33.0	30.8	37.8	38.2
RARELY OR NEVER	38.2	55.8	46.5	40.3	24.7	61.8	45.0	42.2	43.6	27.5
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	22.3	9.6	11.0	19.8	56.5	9.8	11.1	13.4	14.7	40.6
OCCASIONALLY	22.3	20.8	25.2	21.5	18.9	14.9	26.8	30.2	25.7	19.4
RARELY OR NEVER	55.4	69.6	63.9	58.7	24.5	75.3	62.1	56.4	59.6	40.1
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	24.6	19.9	14.9	19.6	41.9	18.9	20.2	23.1	16.2	32.3
OCCASIONALLY	35.6	26.5	41.1	36.2	31.5	21.1	34.7	32.9	40.5	38.1
RARELY OR NEVER	39.8	53.6	44.0	44.2	26.6	60.0	45.2	44.0	43.3	29.7
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	27.7	23.3	19.5	24.2	40.4	20.8	23.5	29.4	19.1	34.2
OCCASIONALLY	36.7	25.6	39.7	37.3	35.1	22.4	34.2	32.9	40.6	40.3
RARELY OR NEVER	35.7	51.1	40.8	38.4	24.5	56.8	42.3	37.7	40.3	25.4
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	34.6	39.1	20.7	28.5	45.8	23.1	38.2	42.4	30.5	34.4
OCCASIONALLY	39.0	15.5	43.0	46.0	31.5	25.7	32.6	21.6	37.7	43.3
RARELY OR NEVER	26.4	45.5	36.3	25.5	22.7	51.2	29.1	36.0	31.8	22.2

B. ADMINISTRATIVE UNIT GUIDE FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	19.8	53.6	29.2	14.3	14.0	59.8	32.7	15.5	17.6	8.9
OCCASIONALLY	17.0	10.8	25.3	15.2	13.9	13.3	23.0	22.0	15.2	15.4
RARELY OR NEVER	63.2	35.7	45.6	70.5	72.1	26.9	44.3	62.5	67.2	75.7
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	22.1	51.5	28.0	15.1	8.9	56.5	36.5	21.0	14.7	4.1
OCCASIONALLY	17.7	11.1	25.3	18.0	5.4	13.6	23.0	26.0	19.3	13.8
RARELY OR NEVER	60.2	37.5	46.7	66.9	85.7	29.9	40.5	53.0	66.0	82.0
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	20.5	53.3	28.7	16.1	13.9	59.4	32.0	15.2	16.3	9.9
OCCASIONALLY	17.4	12.9	24.9	15.6	14.4	13.8	22.2	21.9	16.1	15.8
RARELY OR NEVER	62.2	33.8	46.4	68.3	71.7	26.8	45.8	63.0	67.7	74.3
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	21.6	55.7	31.8	16.7	14.2	61.5	33.6	15.1	19.1	10.6
OCCASIONALLY	16.8	10.6	23.8	15.1	14.4	13.2	23.2	21.5	13.7	15.4
RARELY OR NEVER	61.6	33.7	44.4	68.2	71.4	25.3	43.3	63.4	67.2	74.1
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	13.7	52.7	24.2	6.3	15.5	63.5	26.9	12.4	21.3	7.8
OCCASIONALLY	16.1	4.3	31.2	13.0	15.7	11.2	25.2	20.0	11.2	15.6
RARELY OR NEVER	70.2	43.0	44.6	80.7	68.3	25.3	47.9	67.6	67.5	76.7

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 21.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING VARIOUS RESOURCES FOR SUGGESTIONS OF WHAT TO STUDY IN SCIENCE BY FREQUENCY, BY GRADE GROUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62 (CONTINUED)

C. LOCAL SCHOOL GUIDE FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	24.9	45.3	36.5	21.6	16.2	46.9	38.6	24.1	27.5	14.8
OCCASIONALLY	16.8	13.5	23.3	11.1	20.2	10.8	18.4	20.6	22.0	14.5
RARELY OR NEVER	58.4	41.2	40.3	67.3	63.5	42.3	43.0	55.3	50.5	70.7
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	26.0	41.4	37.4	17.6	11.8	44.1	40.1	25.8	30.7	8.3
OCCASIONALLY	17.2	8.8	24.7	11.0	18.8	11.8	16.5	20.0	19.3	18.0
RARELY OR NEVER	56.8	49.7	37.9	71.5	69.5	44.0	43.3	54.2	50.0	73.7
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	25.4	45.7	35.1	22.6	17.5	46.6	38.5	23.7	24.2	16.3
OCCASIONALLY	16.7	15.2	22.8	11.7	19.7	11.4	18.6	20.7	25.4	11.9
RARELY OR NEVER	57.8	39.1	42.1	65.7	62.7	42.0	43.0	55.6	50.3	71.8
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	25.9	46.8	38.4	22.4	16.9	49.1	40.0	24.4	25.6	15.8
OCCASIONALLY	17.7	14.7	20.9	13.5	21.8	9.8	18.4	20.6	22.5	16.3
RARELY OR NEVER	56.4	38.5	40.6	64.1	61.4	41.1	41.6	55.0	51.8	67.8
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	20.9	48.3	32.5	20.7	15.2	46.9	32.5	22.5	40.1	14.4
OCCASIONALLY	14.7	15.6	29.6	6.3	19.4	9.5	20.2	20.9	12.2	13.9
RARELY OR NEVER	64.4	36.1	37.8	73.0	65.4	43.7	47.2	56.5	47.7	71.7

D. SCIENCE TEXTBOOKS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	80.2	70.5	74.1	78.4	89.8	68.0	75.4	79.5	75.2	86.6
OCCASIONALLY	9.6	15.4	12.7	10.4	4.9	17.3	13.6	11.0	11.2	5.7
RARELY OR NEVER	10.2	14.1	13.2	11.2	5.4	14.7	11.0	9.5	13.6	7.7
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	48.6	50.2	37.4	43.3	80.7	43.8	41.2	56.6	27.5	64.1
OCCASIONALLY	16.0	14.6	19.3	19.3	3.5	20.3	18.4	14.1	22.5	9.7
RARELY OR NEVER	35.4	35.3	43.3	37.3	15.7	35.9	40.4	29.3	50.0	26.3
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	78.1	71.1	77.7	73.5	87.2	69.5	74.5	76.2	75.4	83.7
OCCASIONALLY	12.2	20.0	13.5	15.1	5.1	19.9	16.4	13.8	10.0	9.4
RARELY OR NEVER	9.6	8.9	8.8	11.4	7.7	10.6	9.2	10.0	14.5	6.9
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	89.7	80.0	88.7	89.7	92.1	81.2	86.2	88.3	91.9	92.3
OCCASIONALLY	7.0	13.6	9.6	5.7	5.5	13.0	10.7	8.6	7.8	3.4
RARELY OR NEVER	3.3	6.4	1.7	4.6	2.3	5.8	3.0	3.1	.3	4.3
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	90.7	86.4	91.6	88.7	93.0	75.5	90.9	86.9	90.6	92.2
OCCASIONALLY	4.9	9.1	6.4	4.8	4.1	15.6	7.0	7.5	9.4	2.8
RARELY OR NEVER	4.4	4.5	2.0	6.5	2.9	8.9	2.1	5.6	.0	5.0

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 21.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING VARIOUS RESOURCES FOR SUGGESTIONS OF WHAT TO STUDY IN SCIENCE BY FREQUENCY, BY GRADE GROUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62 (CONTINUED)

E. TEACHERS IDEAS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	52.6	52.2	54.2	53.4	50.1	58.0	60.5	56.9	44.0	51.3
OCCASIONALLY	36.6	35.8	37.6	35.0	38.3	32.8	29.5	38.1	44.6	36.0
RARELY OR NEVER	10.8	12.0	8.2	11.6	11.6	9.2	10.0	5.0	11.4	12.7
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	57.5	58.2	62.2	53.1	56.3	59.1	61.9	66.7	48.7	57.1
OCCASIONALLY	32.5	31.3	25.6	41.0	30.2	29.8	26.6	28.6	35.3	35.9
RARELY OR NEVER	10.0	10.5	12.2	5.9	13.5	11.0	11.6	4.7	16.0	6.9
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	53.9	50.9	54.2	56.4	50.1	59.5	61.0	54.7	50.0	51.6
OCCASIONALLY	36.5	37.0	38.0	33.9	39.2	32.3	29.4	39.1	44.1	35.6
RARELY OR NEVER	9.6	12.2	7.8	9.7	10.6	8.3	9.6	6.1	5.9	12.9
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	51.5	51.2	52.4	52.2	49.7	57.2	59.5	56.5	37.8	52.0
OCCASIONALLY	37.0	36.7	40.2	33.7	39.3	33.8	31.5	39.5	46.3	35.0
RARELY OR NEVER	11.5	12.1	7.5	14.1	11.0	9.0	9.0	4.9	15.8	13.0
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	48.4	45.6	42.6	50.3	48.3	51.9	60.6	53.8	36.6	47.8
OCCASIONALLY	39.3	40.1	53.7	35.5	38.9	39.7	27.2	43.4	54.2	37.8
RARELY OR NEVER	12.3	14.3	3.7	14.1	12.9	8.4	12.2	2.8	9.2	14.4

TABLE 22.-- PERCENT OF ELEMENTARY SCHOOLS BY AVERAGE CLASS SIZE OF GRADE GROUPS AND BY FREQUENCY OF USE OF SELECTED TEACHING AIDS. 1961-62

A. SCIENCE TEXTBOOKS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	AVERAGE CLASS SIZE INTERVALS				
		19 PUPILS AND UNDER	20 TO 24 PUPILS	25 TO 29 PUPILS	30 TO 34 PUPILS	35 PUPILS AND OVER
KINDERGARTEN						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	27.5	56.3	12.0	15.8	16.4	14.5
OCCASIONALLY	14.5	15.4	7.7	19.6	14.9	14.4
RARELY OR NEVER	58.0	28.3	80.2	64.6	68.7	71.1
GRADES 1 TO 3						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	74.0	79.5	75.0	62.7	78.1	51.5
OCCASIONALLY	15.5	9.7	17.8	24.7	12.9	29.7
RARELY OR NEVER	10.6	10.8	7.2	12.6	8.9	18.8
GRADES 4 TO 6						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	79.7	87.2	93.0	71.3	76.1	73.3
OCCASIONALLY	14.0	12.1	5.6	18.8	13.8	16.0
RARELY OR NEVER	6.3	.7	1.3	9.9	10.1	13.7
GRADES 7 AND 8						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	95.6	94.5	97.2	96.7	97.9	99.1
OCCASIONALLY	4.1	5.5	2.8	1.5	2.1	.4
RARELY OR NEVER	.3	.0	.0	1.8	.0	.5

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 22.-- PERCENT OF ELEMENTARY SCHOOLS BY AVERAGE CLASS SIZE OF GRADE GROUPS AND BY FREQUENCY OF USE OF SELECTED TEACHING AIDS. 1961-62 (CONTINUED)

B. MATERIALS FOR SCIENCE EXPERIMENT FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	AVERAGE CLASS SIZE INTERVALS				
		19 PUPILS AND UNDER	20 TO 24 PUPILS	25 TO 29 PUPILS	30 TO 34 PUPILS	35 PUPILS AND OVER
KINDERGARTEN						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	19.4	5.3	27.1	20.2	33.6	21.8
OCCASIONALLY	46.4	54.9	42.5	51.5	38.4	38.3
RARELY OR NEVER	34.2	39.8	30.4	28.3	28.0	39.9
GRADES 1 TO 3						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	27.6	11.7	32.1	36.7	47.9	25.0
OCCASIONALLY	52.3	58.1	54.5	49.6	41.6	51.8
RARELY OR NEVER	20.1	30.2	13.3	13.7	10.6	23.2
GRADES 4 TO 6						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	34.4	12.1	49.1	54.5	59.8	44.2
OCCASIONALLY	55.4	70.8	48.3	39.7	38.9	44.8
RARELY OR NEVER	10.2	17.1	2.6	5.8	1.3	11.0
GRADES 7 AND 8						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	33.1	15.6	45.4	71.1	67.7	56.8
OCCASIONALLY	54.1	65.4	53.7	24.1	31.4	39.5
RARELY OR NEVER	12.9	19.0	.9	4.8	.9	3.7

C. EXCURSIONS BEYOND SCHOOL GROUNDS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	AVERAGE CLASS SIZE INTERVALS				
		19 PUPILS AND UNDER	20 TO 24 PUPILS	25 TO 29 PUPILS	30 TO 34 PUPILS	35 PUPILS AND OVER
KINDERGARTEN						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	8.3	11.4	2.8	4.9	7.2	13.1
OCCASIONALLY	35.6	28.7	49.1	45.3	31.5	28.8
RARELY OR NEVER	56.0	59.9	48.2	49.8	61.2	58.2
GRADES 1 TO 3						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	6.6	5.0	8.4	10.1	4.7	6.7
OCCASIONALLY	36.6	33.9	35.8	39.9	39.9	32.9
RARELY OR NEVER	56.8	61.1	55.7	49.9	55.4	60.4
GRADES 4 TO 6						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	8.3	4.7	5.9	15.6	11.6	7.0
OCCASIONALLY	40.6	39.4	52.1	37.4	40.0	44.9
RARELY OR NEVER	51.1	55.8	42.0	47.0	48.4	48.1
GRADES 7 AND 8						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	6.2	3.6	3.0	15.6	12.1	6.6
OCCASIONALLY	33.7	36.5	13.1	38.7	32.2	25.4
RARELY OR NEVER	60.1	60.0	83.8	45.7	55.7	68.0

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 22.-- PERCENT OF ELEMENTARY SCHOOLS BY AVERAGE CLASS SIZE OF GRADE GROUPS AND BY FREQUENCY OF USE OF SELECTED TEACHING AIDS, 1961-62 (CONTINUED)

D. SCIENCE LIBRARY BOOKS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	AVERAGE CLASS SIZE INTERVALS				
		19 PUPILS AND UNDER	20 TO 24 PUPILS	25 TO 29 PUPILS	30 TO 34 PUPILS	35 PUPILS AND OVER
KINDERGARTEN						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	32.8	27.6	21.6	45.2	41.2	32.9
OCCASIONALLY	27.9	36.1	18.2	21.6	24.2	33.2
RARELY OR NEVER	39.2	36.3	60.2	33.3	34.6	33.9
GRADES 1 TO 3						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	41.5	35.0	36.8	48.9	51.0	39.0
OCCASIONALLY	35.1	35.8	33.6	37.1	33.0	33.4
RARELY OR NEVER	23.4	29.3	29.6	13.9	16.0	27.6
GRADES 4 TO 6						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	44.5	33.2	43.1	65.4	50.1	58.4
OCCASIONALLY	38.2	45.8	31.4	31.0	32.2	27.6
RARELY OR NEVER	17.3	21.0	25.5	3.6	17.7	14.0
GRADES 7 AND 8						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	45.4	39.8	19.5	66.4	72.0	63.7
OCCASIONALLY	39.2	49.1	33.8	17.8	19.1	21.3
RARELY OR NEVER	15.4	11.1	46.7	15.9	9.0	15.1

E. TELEVISION FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	AVERAGE CLASS SIZE INTERVALS				
		19 PUPILS AND UNDER	20 TO 24 PUPILS	25 TO 29 PUPILS	30 TO 34 PUPILS	35 PUPILS AND OVER
KINDERGARTEN						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	4.7	.3	2.9	6.6	5.6	11.4
OCCASIONALLY	11.4	2.1	15.0	14.9	16.5	15.6
RARELY OR NEVER	83.9	97.6	82.1	78.5	77.8	73.0
GRADES 1 TO 3						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	7.6	1.7	7.0	12.0	14.9	11.1
OCCASIONALLY	16.9	12.8	10.4	24.9	19.3	28.5
RARELY OR NEVER	75.5	85.5	82.6	63.1	65.8	60.4
GRADES 4 TO 6						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	10.8	2.0	9.0	21.8	19.1	28.8
OCCASIONALLY	15.5	10.9	12.1	27.6	13.7	33.0
RARELY OR NEVER	73.6	87.1	78.9	50.6	67.2	38.2
GRADES 7 AND 8						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	5.3	1.2	11.1	9.4	17.9	12.0
OCCASIONALLY	11.4	10.9	3.3	9.2	13.6	50.4
RARELY OR NEVER	83.3	88.0	85.6	81.4	68.6	37.5

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 23.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING SELECTED TEACHING AIDS, BY FREQUENCY OF USE, BY GRADE GROUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

A. SCIENCE TEXTBOOKS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	77.6	67.0	71.0	74.5	89.7	66.8	76.6	76.6	70.9	83.4
USED OCCASIONALLY	10.5	14.6	9.8	12.8	6.9	15.9	10.3	9.1	10.2	9.9
RARELY OR NEVER	11.9	18.4	19.2	12.7	3.4	17.3	13.0	14.3	19.0	6.8
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	28.1	23.8	12.0	21.0	76.2	22.7	26.9	10.2	8.6	46.4
USED OCCASIONALLY	14.3	12.3	14.6	19.1	5.4	17.3	14.2	17.9	13.3	12.4
RARELY OR NEVER	57.6	63.9	73.4	59.9	18.4	60.0	58.9	71.9	78.2	39.2
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	73.9	66.5	76.5	65.0	87.2	68.8	73.1	75.2	68.7	77.8
USED OCCASIONALLY	15.4	26.3	14.4	19.8	7.4	22.6	17.5	14.9	13.8	13.8
RARELY OR NEVER	10.7	7.2	9.1	15.3	5.4	8.6	9.4	10.0	17.5	8.4
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	92.1	90.4	94.8	91.9	90.3	89.9	94.9	95.0	91.7	90.9
USED OCCASIONALLY	7.4	8.4	4.6	7.3	9.7	9.0	4.0	3.2	8.0	9.1
RARELY OR NEVER	.6	1.1	.6	.8	.0	1.1	1.1	1.8	.3	.0
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	95.6	96.2	96.9	93.9	97.1	86.8	97.1	97.2	100.0	95.0
USED OCCASIONALLY	4.1	3.4	1.6	5.9	2.9	12.0	1.6	1.4	.0	5.0
RARELY OR NEVER	.3	.5	1.5	.2	.0	1.2	1.3	1.4	.0	.0

B. MATERIALS FOR SCIENCE EXPERIMENT FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	30.5	58.8	43.4	32.2	12.3	48.3	47.2	27.8	39.1	16.7
USED OCCASIONALLY	52.3	32.5	40.1	50.8	68.3	41.0	42.6	57.2	48.6	56.1
RARELY OR NEVER	17.1	8.8	16.5	17.0	19.5	10.7	10.2	15.1	12.3	23.2
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	19.6	40.9	24.2	14.7	9.3	30.2	28.0	20.9	25.1	7.4
USED OCCASIONALLY	46.7	34.6	39.2	45.9	69.2	43.8	42.9	51.8	36.5	53.9
RARELY OR NEVER	33.7	24.5	36.6	39.4	21.6	26.0	29.1	27.4	38.4	38.7
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	27.6	56.0	39.4	27.0	12.6	42.6	42.8	21.7	33.2	17.0
USED OCCASIONALLY	52.3	37.3	42.8	52.3	63.5	48.0	46.2	61.5	56.1	50.9
RARELY OR NEVER	20.2	6.6	17.8	20.8	23.9	9.5	11.0	16.8	10.8	32.1
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	36.7	68.9	54.1	38.4	13.6	62.2	57.1	32.2	45.7	20.3
USED OCCASIONALLY	53.7	29.9	40.2	52.8	70.8	34.8	39.6	57.6	48.3	64.8
RARELY OR NEVER	9.6	1.2	5.7	8.7	15.6	3.0	3.4	10.2	6.0	14.9
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	33.1	77.3	61.6	41.2	11.1	66.3	56.5	37.8	57.9	23.3
USED OCCASIONALLY	54.1	20.7	32.2	47.9	70.8	28.7	39.7	50.8	41.2	60.0
RARELY OR NEVER	12.9	2.1	6.2	10.9	18.1	4.9	3.7	11.4	.9	16.7

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 23.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING SELECTED TEACHING AIDS BY FREQUENCY OF USE, BY GRADE GROUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62 (CONTINUED)

C. TEACHER DEMONSTRATIONS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	28.1	42.0	37.8	29.1	15.9	39.7	35.5	25.7	30.2	22.9
USED OCCASIONALLY	45.6	37.0	41.3	48.0	47.4	44.5	47.5	51.9	50.1	41.9
RARELY OR NEVER	26.3	20.9	20.9	22.9	36.7	15.8	17.0	22.4	19.7	35.1
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	25.1	29.8	26.5	28.3	13.9	27.0	26.0	22.4	21.8	26.7
USED OCCASIONALLY	39.8	36.9	36.5	39.1	49.1	45.2	40.5	48.7	36.5	35.9
RARELY OR NEVER	35.1	33.3	37.0	32.6	37.0	27.8	33.5	28.9	41.7	37.3
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	24.2	42.3	31.1	24.3	14.6	36.3	30.7	21.8	24.2	19.4
USED OCCASIONALLY	47.2	39.7	45.5	49.1	47.1	49.2	50.3	50.7	57.1	39.5
RARELY OR NEVER	28.6	18.0	23.5	26.5	38.3	14.5	19.0	27.5	18.6	41.0
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	30.0	48.9	43.4	29.8	15.4	47.7	41.6	28.8	34.2	19.8
USED OCCASIONALLY	49.4	37.0	45.7	51.6	51.5	42.1	48.0	53.2	54.1	48.5
RARELY OR NEVER	20.6	14.0	10.9	18.6	33.1	10.2	10.4	17.9	11.8	31.7
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	33.8	48.4	66.1	36.8	18.8	57.8	44.1	30.5	49.9	28.9
USED OCCASIONALLY	40.3	29.4	22.2	45.1	41.7	31.2	46.4	54.4	32.5	39.4
RARELY OR NEVER	25.8	22.2	11.7	18.1	39.5	11.0	9.5	15.1	17.7	31.7

D. MOVING PICTURES FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	21.6	49.3	38.6	20.9	3.6	47.9	34.5	22.9	25.9	9.8
USED OCCASIONALLY	42.9	39.2	38.2	52.0	34.1	40.3	43.9	46.7	48.4	40.0
RARELY OR NEVER	35.4	11.5	23.2	27.1	62.3	11.8	21.6	30.5	25.7	50.2
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	18.6	43.2	25.8	14.4	.0	39.2	26.4	26.4	23.8	.0
USED OCCASIONALLY	35.0	36.2	36.1	36.0	30.5	40.5	46.1	44.7	26.5	29.5
RARELY OR NEVER	46.3	20.5	38.1	49.6	69.4	20.3	27.5	28.9	49.7	70.5
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	22.5	47.4	42.5	20.0	4.1	47.2	34.0	21.4	26.7	10.0
USED OCCASIONALLY	43.7	41.1	35.0	54.9	34.0	41.1	43.4	44.4	52.1	40.0
RARELY OR NEVER	33.8	11.5	22.5	25.1	62.0	11.8	22.6	34.2	21.2	49.9
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	25.6	51.7	46.6	25.0	3.9	53.6	38.5	25.7	28.6	12.6
USED OCCASIONALLY	43.6	40.9	36.7	52.0	37.4	39.4	44.6	47.7	52.8	38.9
RARELY OR NEVER	30.8	7.4	16.7	22.9	58.8	7.0	17.0	26.6	18.6	48.5
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	15.2	61.6	25.0	19.3	3.8	52.2	34.1	16.3	17.8	10.0
USED OCCASIONALLY	46.2	34.9	59.2	56.4	31.3	39.8	40.3	51.5	52.5	45.6
RARELY OR NEVER	38.6	3.4	15.8	24.4	64.9	8.1	25.6	32.2	29.7	44.4

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 23.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING SELECTED TEACHING AIDS BY FREQUENCY OF USE, BY GRADE GROUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62 (CONTINUED)

E. KODACHROME OR LANTERN SLIDES FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	4.6	13.1	6.6	5.4	.1	10.7	7.2	3.3	10.5	.3
USED OCCASIONALLY	19.6	23.1	18.5	21.9	16.5	24.2	18.6	19.5	17.6	19.8
RARELY OR NEVER	75.8	63.8	74.9	72.7	83.4	65.1	74.2	77.2	71.9	79.9
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	3.8	9.6	4.9	3.3	.0	9.1	1.2	3.1	8.6	.0
USED OCCASIONALLY	11.9	19.6	13.2	9.2	10.7	20.1	18.4	16.3	6.6	6.9
RARELY OR NEVER	84.2	70.8	81.9	87.5	89.3	70.8	80.4	80.5	84.8	93.1
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	4.9	11.0	6.7	6.2	.1	10.2	7.2	3.1	11.3	.0
USED OCCASIONALLY	19.2	25.4	18.8	19.3	18.1	22.7	18.0	17.1	21.1	18.3
RARELY OR NEVER	75.9	63.7	74.4	74.5	81.9	67.2	74.7	79.8	67.5	81.7
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	5.4	16.4	7.6	6.4	.1	12.3	8.3	3.1	11.5	.5
USED OCCASIONALLY	22.0	24.8	22.8	23.1	19.0	27.1	19.9	23.1	22.0	21.1
RARELY OR NEVER	72.7	58.8	69.6	70.5	80.9	60.6	71.8	73.8	66.5	78.4
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	3.0	18.0	6.7	3.5	.1	10.8	11.7	4.3	7.5	.6
USED OCCASIONALLY	21.9	19.1	13.8	32.2	13.1	30.6	16.2	19.5	6.5	25.0
RARELY OR NEVER	75.0	62.8	79.5	64.2	86.8	58.5	72.1	76.2	86.1	74.4

F. FILMSTRIPS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	28.2	54.0	39.2	30.2	11.4	43.1	39.6	27.1	33.2	19.6
USED OCCASIONALLY	43.1	35.7	44.5	43.0	43.5	42.3	40.4	46.5	38.6	45.1
RARELY OR NEVER	28.7	10.3	16.3	26.8	45.1	14.6	20.0	26.5	28.2	35.3
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	21.3	47.5	26.1	15.8	9.1	32.1	26.0	31.8	27.1	7.4
USED OCCASIONALLY	38.7	32.4	35.5	38.5	48.7	39.5	36.7	43.4	13.3	52.5
RARELY OR NEVER	40.0	20.1	38.3	45.7	42.3	28.4	37.3	24.8	59.7	40.1
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	28.5	54.0	41.2	28.8	11.7	43.2	40.0	27.7	35.6	17.0
USED OCCASIONALLY	44.2	36.6	46.2	44.8	43.0	43.7	42.7	44.9	40.8	46.5
RARELY OR NEVER	27.3	9.5	12.6	26.4	45.2	13.1	17.2	27.3	23.6	36.6
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	31.7	56.1	43.4	35.9	11.2	49.0	43.9	27.5	35.2	22.7
USED OCCASIONALLY	41.9	37.9	49.1	37.7	42.7	42.8	41.1	49.2	41.9	39.8
RARELY OR NEVER	26.4	6.0	7.5	26.4	46.0	8.2	15.0	23.3	22.9	37.4
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	26.6	62.1	46.1	31.5	11.9	48.9	43.2	20.3	27.2	23.9
USED OCCASIONALLY	46.5	34.5	41.7	51.6	43.3	42.0	35.1	46.2	56.3	46.7
RARELY OR NEVER	26.9	3.4	12.2	17.0	44.8	9.1	21.7	33.5	16.5	29.4

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 23.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING SELECTED TEACHING AIDS BY FREQUENCY OF USE, BY GRADE GROUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62 (CONTINUED)

G. EXCURSIONS TO SCHOOL GROUNDS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	14.9	23.5	15.3	14.5	13.4	21.0	17.7	12.4	13.6	13.8
USED OCCASIONALLY	48.4	49.7	49.0	44.9	52.7	46.2	49.2	52.1	42.3	50.1
RARELY OR NEVER	36.7	26.7	35.7	40.5	33.9	32.8	33.1	35.6	44.1	36.0
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	27.5	35.4	29.4	32.1	10.7	30.2	25.0	27.8	28.5	26.7
USED OCCASIONALLY	43.8	44.3	46.4	36.7	52.4	43.7	42.4	45.4	38.4	47.0
RARELY OR NEVER	28.7	20.3	24.2	31.2	36.9	26.0	32.6	26.8	33.1	26.3
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	15.8	21.0	15.7	16.3	14.2	22.5	19.2	11.0	13.4	15.5
USED OCCASIONALLY	47.5	55.8	52.1	40.2	53.6	48.3	50.3	53.2	44.9	46.0
RARELY OR NEVER	36.7	23.2	32.2	43.5	32.2	29.2	30.5	35.8	41.7	38.6
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	11.3	13.8	9.2	10.4	14.2	15.3	14.6	9.8	7.3	11.5
USED OCCASIONALLY	51.1	51.5	52.8	48.5	53.3	47.3	50.9	49.5	44.9	55.4
RARELY OR NEVER	37.6	34.6	38.0	41.1	32.5	37.4	34.5	40.8	47.9	33.1
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	10.1	33.1	4.8	8.0	12.5	12.2	12.3	7.8	13.9	9.4
USED OCCASIONALLY	48.5	38.7	31.0	52.1	50.7	38.4	49.4	61.6	30.7	50.0
RARELY OR NEVER	41.4	28.2	64.2	39.9	36.8	49.4	38.3	30.6	55.3	40.6

H. EXCURSIONS BEYOND SCHOOL GROUNDS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	7.4	14.9	8.2	7.2	5.7	12.7	8.0	5.4	6.9	6.8
USED OCCASIONALLY	37.5	42.3	49.8	25.5	44.0	47.8	43.2	34.3	36.0	34.8
RARELY OR NEVER	55.1	42.9	42.0	67.3	50.2	39.5	48.8	60.3	57.1	58.4
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	8.6	13.7	4.6	13.3	4.7	10.1	6.4	6.2	8.6	9.7
USED OCCASIONALLY	35.1	38.6	49.1	15.6	44.1	42.1	37.0	32.9	31.8	33.6
RARELY OR NEVER	56.3	47.8	46.4	71.1	51.2	47.9	56.6	60.9	59.7	56.7
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	6.6	13.3	7.2	6.1	5.6	12.2	6.2	5.1	6.3	5.9
USED OCCASIONALLY	36.6	45.1	49.9	23.3	44.3	48.6	44.2	34.3	37.7	30.8
RARELY OR NEVER	56.8	41.6	42.9	70.6	50.1	39.2	49.7	60.6	56.0	63.3
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	8.5	16.3	12.6	6.3	6.8	15.8	10.5	5.0	6.7	7.8
USED OCCASIONALLY	41.4	45.8	49.4	33.4	45.7	50.9	46.0	37.1	38.9	39.8
RARELY OR NEVER	50.1	37.9	37.9	60.2	47.6	33.3	43.6	57.9	54.4	52.3
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	6.2	17.9	4.1	7.1	4.9	9.1	7.8	6.4	7.5	5.6
USED OCCASIONALLY	33.7	31.7	52.7	21.5	41.6	47.0	39.8	29.1	27.1	33.9
RARELY OR NEVER	60.1	50.3	43.2	71.3	53.5	43.9	52.4	64.5	65.5	60.6

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 23.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING SELECTED TEACHING AIDS BY FREQUENCY OF USE, BY GRADE GROUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62 (CONTINUED)

I. PHONOGRAPH RECORDS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	7.6	16.6	12.4	5.5	5.2	13.8	11.6	6.6	12.8	3.2
USED OCCASIONALLY	26.8	22.2	28.5	29.4	22.4	23.8	28.2	27.2	22.1	28.8
RARELY OR NEVER	65.6	61.2	59.1	65.1	72.4	62.4	60.2	66.2	65.1	68.0
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	13.1	17.5	20.9	9.0	3.5	15.4	14.0	13.3	25.1	4.6
USED OCCASIONALLY	21.1	22.2	28.7	13.4	20.9	22.0	29.7	28.1	13.3	19.4
RARELY OR NEVER	65.7	60.2	50.4	77.6	75.6	62.5	56.3	58.7	61.6	76.0
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	7.6	17.3	12.6	5.8	4.4	14.6	11.8	6.5	12.0	2.5
USED OCCASIONALLY	29.0	23.3	29.1	32.4	24.5	24.2	27.9	28.0	24.4	33.3
RARELY OR NEVER	63.4	59.4	58.3	61.8	71.0	61.2	60.4	65.5	63.6	64.3
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	6.7	14.9	9.2	5.0	5.7	12.9	10.5	5.4	8.4	3.4
USED OCCASIONALLY	26.8	23.5	30.1	27.5	23.5	24.1	25.9	25.1	24.3	29.4
RARELY OR NEVER	66.5	61.6	60.7	67.5	70.8	63.0	63.6	69.5	67.2	67.2
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	5.2	17.5	4.7	3.9	5.9	9.3	11.3	3.6	12.2	3.3
USED OCCASIONALLY	26.9	14.6	20.0	36.8	18.8	26.2	35.3	29.8	19.7	26.7
RARELY OR NEVER	67.8	67.9	75.3	59.3	75.2	64.5	53.3	66.5	68.1	70.0

J. RADIO FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	4.7	17.0	4.2	2.9	5.5	12.5	5.3	2.2	5.3	3.2
USED OCCASIONALLY	26.3	24.5	21.5	29.2	26.4	29.3	26.4	20.7	23.9	28.0
RARELY OR NEVER	69.0	58.5	74.3	68.0	68.1	58.2	68.3	77.0	70.8	68.8
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	3.4	16.5	3.7	1.3	.2	12.7	4.0	2.1	1.9	.0
USED OCCASIONALLY	14.9	19.3	14.6	10.8	21.1	25.9	16.1	16.0	13.3	9.7
RARELY OR NEVER	81.7	64.2	81.7	87.8	78.7	61.4	79.8	81.9	84.8	90.3
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	4.9	16.2	4.8	3.0	5.7	12.0	4.5	2.9	5.5	3.5
USED OCCASIONALLY	23.8	24.7	19.6	23.6	27.8	31.1	25.1	18.9	25.2	22.2
RARELY OR NEVER	71.3	59.2	75.6	73.4	66.5	57.0	70.3	78.2	69.3	74.3
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	5.0	18.0	4.7	3.2	5.5	13.9	6.4	2.2	4.3	3.4
USED OCCASIONALLY	28.7	25.7	23.5	32.6	27.7	28.2	28.7	22.0	25.2	32.3
RARELY OR NEVER	66.4	56.3	71.8	64.2	66.8	57.9	64.9	75.7	70.5	64.3
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	4.9	17.4	1.7	2.9	7.2	8.0	6.2	.8	12.2	3.9
USED OCCASIONALLY	35.2	32.5	36.4	44.3	24.7	36.4	37.0	26.4	30.7	36.9
RARELY OR NEVER	59.9	50.1	61.9	52.8	68.1	55.7	56.8	72.8	57.1	59.2

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 23.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING SELECTED TEACHING AIDS BY FREQUENCY OF USE, BY GRADE GROUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62 (CONTINUED)

K. LIBRARY, TRADE BOOKS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	42.7	57.9	54.8	34.1	42.5	56.1	58.5	41.1	54.5	30.5
USED OCCASIONALLY	35.5	27.3	32.4	36.9	37.6	29.7	26.7	41.8	27.5	41.2
RARELY OR NEVER	21.8	14.8	12.8	28.9	19.9	14.2	14.8	17.1	18.0	28.4
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	33.5	46.0	34.7	22.6	46.0	37.4	39.7	31.8	43.6	23.5
USED OCCASIONALLY	27.5	25.3	26.1	25.3	35.8	27.7	21.3	38.9	19.9	30.9
RARELY OR NEVER	39.0	28.7	39.2	52.1	18.2	34.9	39.0	29.3	36.5	45.6
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	41.5	56.3	53.2	33.5	40.9	56.1	57.8	38.4	51.1	27.7
USED OCCASIONALLY	35.2	31.8	38.9	33.9	34.4	32.5	29.2	43.6	33.7	36.2
RARELY OR NEVER	23.4	11.9	7.9	32.6	24.7	11.4	13.0	18.0	15.2	36.1
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	46.3	66.7	64.6	37.1	40.8	66.8	66.3	47.8	59.0	27.8
USED OCCASIONALLY	37.2	25.8	31.2	41.1	38.6	28.4	25.7	39.7	25.5	48.2
RARELY OR NEVER	16.5	7.6	4.2	21.8	20.6	4.8	8.0	12.5	15.5	24.0
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	45.4	63.8	70.1	37.1	45.4	64.4	61.3	39.9	67.5	39.4
USED OCCASIONALLY	39.2	22.4	27.3	42.1	41.0	29.1	29.5	45.0	23.3	42.8
RARELY OR NEVER	15.4	13.8	2.6	20.8	13.5	6.5	9.2	15.1	9.2	17.8

L. PICTURE COLLECTIONS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	27.9	33.5	37.3	23.7	25.1	44.1	34.0	37.6	33.0	17.8
USED OCCASIONALLY	47.6	38.9	40.3	52.2	48.5	37.2	49.2	41.7	43.5	52.6
RARELY OR NEVER	24.5	27.6	22.4	24.0	26.4	18.7	16.7	20.7	23.5	29.6
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	35.0	38.0	45.3	23.7	35.1	46.4	37.6	33.4	48.3	21.2
USED OCCASIONALLY	33.3	30.4	26.0	41.6	32.5	32.8	38.1	38.1	13.3	41.5
RARELY OR NEVER	31.8	31.6	28.7	34.6	32.3	20.9	24.3	28.5	38.4	37.3
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	28.3	33.6	36.1	24.1	27.2	44.4	35.2	37.7	31.9	17.0
USED OCCASIONALLY	48.4	41.0	40.3	55.7	45.4	38.1	49.2	39.2	50.7	52.4
RARELY OR NEVER	23.3	25.4	23.6	20.2	27.4	17.4	15.6	23.1	17.4	30.6
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	28.8	32.8	37.3	27.4	23.2	44.8	33.9	39.1	28.5	20.3
USED OCCASIONALLY	50.1	42.5	45.6	52.5	51.9	38.2	52.0	43.5	51.4	53.8
RARELY OR NEVER	21.0	24.7	17.2	20.2	24.9	17.1	14.2	17.4	20.0	25.9
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	20.0	25.6	24.5	16.9	21.5	32.9	25.6	37.5	28.9	14.4
USED OCCASIONALLY	52.4	40.6	52.5	52.2	53.6	41.6	55.8	47.0	36.3	56.1
RARELY OR NEVER	27.6	33.8	23.0	30.9	24.9	25.5	18.6	15.5	34.7	29.4

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 23.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING SELECTED TEACHING AIDS BY FREQUENCY OF USE, BY GRADE GRCUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62 (CONTINUED)

M. TELEVISION FREQUENCY AND GRADE GRCUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TC 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	8.1	26.5	16.9	5.2	1.6	32.0	11.6	10.5	8.9	.8
USED OCCASIONALLY	15.0	26.3	19.0	13.2	12.3	25.9	29.2	15.3	11.7	9.4
RARELY OR NEVER	76.9	47.2	64.1	81.6	86.1	42.1	59.1	74.2	79.4	89.8
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	4.6	17.7	5.8	2.4	.0	17.5	4.4	5.4	1.9	.0
USED OCCASIONALLY	11.2	16.8	12.4	12.8	2.7	21.2	18.6	13.3	13.3	1.4
RARELY OR NEVER	84.2	65.5	81.8	84.8	97.3	61.3	77.0	81.4	84.8	98.6
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	7.6	26.6	14.3	5.1	1.8	30.1	11.3	5.6	7.4	1.0
USED OCCASIONALLY	16.9	26.8	21.8	15.1	13.3	27.3	30.3	15.5	12.9	11.5
RARELY OR NEVER	75.6	46.5	63.9	79.8	84.9	42.6	58.4	78.9	79.6	87.5
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	11.7	34.6	26.2	7.3	1.9	43.4	16.3	15.4	12.2	1.0
USED OCCASIONALLY	16.7	29.3	20.5	15.8	12.5	26.9	31.8	16.0	11.9	11.1
RARELY OR NEVER	71.6	36.1	53.3	77.0	85.6	29.7	52.0	68.6	75.9	87.9
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	5.3	22.5	18.2	3.7	1.5	33.7	7.6	14.8	13.1	.6
USED OCCASIONALLY	11.4	37.1	18.1	5.4	14.2	28.3	32.2	15.3	4.5	8.4
RARELY OR NEVER	83.3	40.4	63.7	90.9	84.3	38.0	60.2	69.9	82.4	91.1

N. SCIENCE WORKBOOKS FREQUENCY AND GRADE GRCUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 ANC OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TC 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	10.7	10.8	5.1	8.0	19.4	4.3	4.9	4.0	9.2	16.3
USED OCCASIONALLY	19.2	8.9	12.4	19.6	26.1	9.7	11.2	16.4	20.8	23.8
RARELY OR NEVER	70.1	80.3	82.5	72.4	54.5	85.9	83.9	79.6	70.0	59.9
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	6.7	4.9	.0	3.6	26.8	.4	.8	.0	5.2	15.2
USED OCCASIONALLY	5.1	1.7	2.8	4.1	13.4	6.7	3.2	3.1	3.3	6.9
RARELY OR NEVER	88.2	93.4	97.2	92.2	59.8	92.9	96.0	96.9	91.4	77.9
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	9.2	9.5	3.5	7.2	17.5	4.1	4.7	3.8	9.2	13.8
USED OCCASIONALLY	18.8	10.0	12.0	17.4	28.8	10.0	10.8	17.9	25.2	21.3
RARELY OR NEVER	71.9	80.5	84.5	75.4	53.8	85.9	84.5	78.3	65.6	64.9
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	9.7	11.7	5.3	7.0	17.1	6.5	5.8	6.1	7.7	13.9
USED OCCASIONALLY	22.5	13.2	19.4	22.3	27.3	11.0	12.2	17.4	25.4	29.3
RARELY OR NEVER	67.7	75.1	75.3	70.7	55.6	82.5	82.0	76.5	66.9	56.8
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	18.3	25.3	21.0	13.7	22.0	7.3	8.2	3.1	19.3	22.2
USED OCCASIONALLY	24.4	9.0	10.3	28.4	25.7	12.3	20.7	22.9	15.9	27.2
RARELY OR NEVER	57.3	65.8	68.8	57.9	52.3	80.4	71.1	74.0	64.8	50.6

NOTE. BECAUSE OF RCUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 23.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING SELECTED TEACHING AIDS BY FREQUENCY OF USE, BY GRADE GROUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62 (CONTINUED)

O. MUSEUMS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	2.6	12.0	4.6	2.1	.0	7.9	3.6	3.4	4.9	.0
USED OCCASIONALLY	20.1	31.8	27.1	15.2	19.5	39.9	23.5	16.1	27.6	12.7
RARELY OR NEVER	77.2	56.2	68.3	82.7	80.5	52.1	72.9	80.5	67.5	87.3
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	2.0	9.6	1.8	1.2	.0	5.2	2.4	3.1	1.9	.0
USED OCCASIONALLY	12.1	20.2	12.2	7.5	16.8	21.1	19.8	15.9	3.3	8.3
RARELY OR NEVER	85.9	70.1	86.0	91.2	83.2	73.7	77.8	81.0	94.8	91.7
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	2.5	10.1	3.6	2.5	.0	6.9	2.5	3.0	5.0	.0
USED OCCASIONALLY	22.1	32.7	30.5	18.1	18.9	41.9	22.8	16.5	30.3	14.3
RARELY OR NEVER	75.4	57.2	65.9	79.3	81.1	51.2	74.7	80.5	64.7	85.7
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	3.8	14.8	8.2	2.6	.0	11.1	5.5	4.2	6.7	.0
USED OCCASIONALLY	24.0	39.5	35.1	17.9	20.9	50.0	28.0	16.6	33.2	14.1
RARELY OR NEVER	72.2	45.7	56.8	79.5	79.1	38.9	66.5	79.2	60.1	85.9
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	1.1	14.5	2.0	.9	.0	6.9	2.8	2.8	2.7	.0
USED OCCASIONALLY	15.7	32.3	19.9	10.1	19.5	42.4	16.0	14.3	34.7	11.1
RARELY OR NEVER	83.2	53.2	78.1	89.0	80.5	50.7	81.2	82.9	62.5	88.9

P. SPEAKERS FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ALL GRADES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	1.2	6.7	1.6	1.2	.0	2.9	1.5	2.6	2.3	.0
USED OCCASIONALLY	16.3	23.5	26.7	12.6	11.8	25.1	26.4	18.7	22.9	8.0
RARELY OR NEVER	82.5	69.8	71.7	86.2	88.2	71.9	72.1	78.7	74.8	92.0
KINDERGARTEN										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	.9	5.2	.0	1.1	.0	.7	.0	3.1	1.9	.0
USED OCCASIONALLY	5.7	11.5	10.5	2.2	.0	12.8	9.2	8.5	.0	3.2
RARELY OR NEVER	93.4	83.3	89.5	96.7	100.0	86.5	90.8	88.4	98.1	96.8
GRADES 1 TO 3										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	.9	4.9	1.1	.8	.0	2.0	1.2	2.4	.8	.0
USED OCCASIONALLY	17.6	23.0	29.5	12.7	13.8	25.5	27.7	18.6	28.7	6.1
RARELY OR NEVER	81.6	72.1	69.4	86.5	86.2	72.5	71.2	79.0	70.5	93.9
GRADES 4 TO 6										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	1.9	6.7	3.3	1.8	.0	4.2	2.4	3.0	3.8	.0
USED OCCASIONALLY	21.5	30.7	36.5	16.9	14.0	32.8	33.4	22.0	30.3	10.2
RARELY OR NEVER	76.6	62.6	60.1	81.3	86.0	63.0	64.2	75.0	65.9	89.8
GRADES 7 AND 8										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USED VERY OFTEN	1.0	15.7	1.0	.7	.0	7.9	2.2	1.4	2.7	.0
USED OCCASIONALLY	12.6	30.8	17.7	11.6	10.6	26.1	22.5	20.7	12.2	9.4
RARELY OR NEVER	86.5	53.4	81.2	87.7	89.4	66.1	75.2	77.9	85.1	90.6

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 24.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS IN WHICH CONSERVATION EDUCATION IS TAUGHT PRIMARILY BY A GIVEN METHOD, BY GRADE GROUP AND BY SCHOOL ENROLLMENT, 1961-62

HOW CONSERVATION IS TAUGHT AND GRADE GROUP	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES	100.0	100.0	100.0	100.0	100.0
TAUGHT SEPARATELY	1.8	1.3	2.3	2.4	.7
TAUGHT WITH SCIENCE	27.2	26.3	27.6	31.0	21.5
TAUGHT WITH SOCIAL STUDIES	17.4	23.0	19.1	12.3	22.3
INTEGRATED WITH ALL SUBJECTS	46.3	33.6	44.6	51.2	42.7
OTHER	.5	2.8	1.0	.1	.2
COMBINATION	6.8	13.0	5.2	3.0	12.6
KINDERGARTEN	100.0	100.0	100.0	100.0	100.0
TAUGHT SEPARATELY	4.8	1.5	3.9	9.0	.0
TAUGHT WITH SCIENCE	21.9	14.5	23.7	24.9	16.5
TAUGHT WITH SOCIAL STUDIES	9.6	12.7	10.6	4.5	16.5
INTEGRATED WITH ALL SUBJECTS	57.6	55.4	60.4	60.3	47.7
OTHER	.9	5.2	.7	.3	.0
COMBINATION	5.1	10.8	.7	1.0	19.3
GRADES 1 TO 3	100.0	100.0	100.0	100.0	100.0
TAUGHT SEPARATELY	.9	1.0	1.3	1.1	.2
TAUGHT WITH SCIENCE	26.5	28.9	28.3	28.0	22.1
TAUGHT WITH SOCIAL STUDIES	18.4	23.0	20.6	13.8	23.1
INTEGRATED WITH ALL SUBJECTS	47.4	32.0	44.5	53.6	43.0
OTHER	.6	3.9	.9	.0	.6
COMBINATION	6.2	11.2	4.4	3.5	11.1
GRADES 4 TO 6	100.0	100.0	100.0	100.0	100.0
TAUGHT SEPARATELY	1.8	1.4	2.7	1.7	1.0
TAUGHT WITH SCIENCE	27.8	32.4	28.5	31.2	21.5
TAUGHT WITH SOCIAL STUDIES	19.1	26.6	21.9	14.3	22.6
INTEGRATED WITH ALL SUBJECTS	42.7	24.5	37.0	47.8	43.3
OTHER	.3	.5	.9	.1	.0
COMBINATION	8.3	14.6	8.9	4.8	11.6
GRADES 7 AND 8	100.0	100.0	100.0	100.0	100.0
TAUGHT SEPARATELY	1.4	1.9	1.5	1.7	1.1
TAUGHT WITH SCIENCE	31.5	27.1	30.8	39.8	22.6
TAUGHT WITH SOCIAL STUDIES	17.9	35.5	22.5	11.1	22.9
INTEGRATED WITH ALL SUBJECTS	42.1	16.1	38.0	47.0	39.9
OTHER	.4	.5	2.5	.2	.0
COMBINATION	6.6	18.9	4.7	.3	13.6

TABLE 25.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING ADOPTED SCIENCE TEXTBOOK SERIES, BY GRADE GROUP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62

TEXTBOOK ADOPTION PRACTICE AND GRADE GROUP	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
GRADES 1 TO 3										
TOTALS	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO SCIENCE BOOK ADOPTED	17.8	22.3	10.4	26.1	10.0	17.0	20.5	20.4	17.3	16.4
SINGLE SCIENCE BOOK ADOPTED	58.8	32.8	58.5	52.9	73.6	31.6	52.9	59.6	64.7	64.7
TWO OR MORE SCIENCE BOOKS ADOPTED	23.5	44.9	31.1	21.0	16.4	51.4	26.6	20.0	18.0	18.9
GRADES 4 TO 6										
TOTALS	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO SCIENCE BOOK ADOPTED	4.5	8.8	3.5	5.0	3.7	6.7	5.5	2.8	1.7	5.3
SINGLE SCIENCE BOOK ADOPTED	67.0	36.8	58.7	71.8	72.3	36.3	64.6	73.3	77.4	68.8
TWO OR MORE SCIENCE BOOKS ADOPTED	28.5	54.4	37.8	23.2	24.0	57.0	30.0	23.9	20.9	25.9
GRADES 7 AND 8										
TOTALS	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO SCIENCE BOOK ADOPTED	4.5	4.0	2.1	5.7	3.8	9.8	2.5	1.4	.0	5.6
SINGLE SCIENCE BOOK ADOPTED	69.0	46.3	63.3	67.6	74.2	36.1	80.3	78.2	82.6	66.1
TWO OR MORE SCIENCE BOOKS ADOPTED	26.5	49.7	34.5	26.7	22.0	54.1	17.2	20.4	17.4	28.3

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 26.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS WITH VARIOUS POLICIES REGARDING THE TEACHING OF SCIENCE IN RELATION TO SOCIAL STUDIES, BY SCHOOL ENROLLMENT AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

POLICY	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO OFFICIAL POLICY	16.3	16.1	15.5	15.8	17.8	10.4	16.9	19.2	12.4	18.6
SCIENCE AND SOCIAL STUDIES TOGETHER	3.6	4.0	2.8	5.0	2.2	6.7	4.2	1.4	1.6	4.3
SCIENCE SEPARATE	24.8	19.3	19.9	23.3	32.2	21.0	25.5	25.5	21.9	26.8
SEPARATE BUT INTEGRATED WHEN POSSIBLE	50.4	57.8	58.2	49.2	44.3	58.2	48.9	50.7	58.3	45.1
OTHER	4.8	2.7	3.6	6.7	3.5	3.6	4.5	3.1	5.9	5.3

TABLE 27.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY AVAILABILITY OF SCIENCE EQUIPMENT AND SUPPLIES, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

AVAILABILITY	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VERY PLENTIFUL	7.8	11.8	13.1	9.1	.8	13.7	15.0	6.6	9.4	3.3
GENERALLY ADEQUATE	46.0	67.7	69.0	47.5	20.4	63.9	62.6	53.9	61.3	25.5
FAR FROM ADEQUATE	35.4	19.9	15.9	36.6	52.9	21.7	19.9	31.2	27.5	49.7
COMPLETELY LACKING	10.8	.5	1.9	6.9	26.0	.7	2.5	8.3	1.8	21.5

TABLE 28.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY AVAILABILITY OF SCIENCE EQUIPMENT AND SUPPLIES, AND BY SCHOOL AVERAGE CLASS SIZE. 1961-62

AVAILABILITY	TOTAL SCHOOLS	AVERAGE CLASS SIZE INTERVALS				
		19 PUPILS AND UNDER	20 TO 24 PUPILS	25 TO 29 PUPILS	30 TO 34 PUPILS	35 PUPILS AND OVER
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
VERY PLENTIFUL	7.8	1.2	8.4	17.5	9.1	10.2
QUITE PLENTIFUL	46.0	27.9	39.2	65.4	61.4	60.4
FAR FROM ADEQUATE	35.4	52.8	41.1	16.8	20.0	26.6
COMPLETELY LACKING	10.8	18.1	11.2	.3	9.4	2.9

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 29.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS THAT TEACH SCIENCE IN VARIOUS TYPES OF ROOMS, BY GRADE AND BY SCHOOL ENROLLMENT. 1961-62

TYPE OF CLASSROOM USED AND GRADE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
REGULAR CLASSROOM	82.7	72.1	69.9	81.9	97.7
REGULAR CLASSROOM WITH SPECIAL FACILITIES	13.1	18.6	23.3	13.7	1.7
SPECIAL ROOM	2.3	5.2	3.4	2.5	.5
OTHER	1.9	4.2	3.4	2.0	.0
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
REGULAR CLASSROOM	89.9	86.8	86.3	89.4	100.0
REGULAR CLASSROOM WITH SPECIAL FACILITIES	9.1	8.5	13.6	9.2	.0
SPECIAL ROOM	.0	.0	.1	.0	.0
OTHER	.9	4.7	.0	1.4	.0
FIRST GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
REGULAR CLASSROOM	88.0	84.0	82.4	86.1	98.1
REGULAR CLASSROOM WITH SPECIAL FACILITIES	8.9	11.3	14.1	9.6	1.9
SPECIAL ROOM	.5	.8	1.4	.3	.0
OTHER	2.6	3.9	2.1	4.0	.0
SECOND GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
REGULAR CLASSROOM	88.0	83.5	81.8	86.5	98.4
REGULAR CLASSROOM WITH SPECIAL FACILITIES	8.7	11.2	14.1	9.1	1.6
SPECIAL ROOM	.7	1.3	1.7	.5	.0
OTHER	2.6	4.0	2.3	3.9	.0
THIRD GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
REGULAR CLASSROOM	86.9	81.2	73.4	88.7	98.6
REGULAR CLASSROOM WITH SPECIAL FACILITIES	11.1	12.2	23.0	9.8	1.4
SPECIAL ROOM	.5	2.3	.7	.5	.0
OTHER	1.4	4.3	2.8	1.1	.0
FOURTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
REGULAR CLASSROOM	83.7	75.1	69.4	84.5	97.6
REGULAR CLASSROOM WITH SPECIAL FACILITIES	13.3	15.5	25.1	13.4	1.6
SPECIAL ROOM	1.2	4.6	1.6	.8	.8
OTHER	1.8	4.8	3.9	1.2	.0
FIFTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
REGULAR CLASSROOM	79.8	65.4	63.5	80.5	97.0
REGULAR CLASSROOM WITH SPECIAL FACILITIES	15.9	23.8	28.8	16.0	2.1
SPECIAL ROOM	2.2	6.0	3.4	2.0	.8
OTHER	2.0	4.8	4.3	1.6	.0
SIXTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
REGULAR CLASSROOM	76.8	63.4	60.3	76.0	97.2
REGULAR CLASSROOM WITH SPECIAL FACILITIES	18.5	25.2	30.4	20.6	1.9
SPECIAL ROOM	2.6	6.5	4.5	2.1	.9
OTHER	2.0	4.9	4.8	1.3	.0
SEVENTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
REGULAR CLASSROOM	71.1	20.6	26.5	67.5	96.7
REGULAR CLASSROOM WITH SPECIAL FACILITIES	18.2	52.9	44.5	20.8	2.3
SPECIAL ROOM	9.4	26.1	21.6	11.2	1.1
OTHER	1.2	.5	7.4	.5	.0
EIGHTH GRADE					
TOTAL	100.0	100.0	100.0	100.0	100.0
REGULAR CLASSROOM	74.0	15.3	22.2	70.6	97.0
REGULAR CLASSROOM WITH SPECIAL FACILITIES	15.5	53.0	47.3	17.1	1.9
SPECIAL ROOM	8.9	31.1	21.5	11.0	1.1
OTHER	1.6	.6	9.0	1.3	.0

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 30.-- MEAN, MEDIAN, AND MODE NUMBER OF ITEMS OF SCIENCE EQUIPMENT AND APPARATUS IN PUBLIC ELEMENTARY SCHOOLS, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62

ITEM	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
ANEMOMETER										
MEAN	.3	.6	.5	.3	.0	.5	.5	.3	.5	.1
MEDIAN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ANIMAL CAGE										
MEAN	.8	1.6	1.3	.8	.2	1.4	1.1	.8	.9	.4
MEDIAN	.0	1.0	1.0	.0	.0	1.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
AQUARIUM										
MEAN	2.7	7.7	5.1	2.1	.5	5.7	4.1	3.1	3.3	.9
MEDIAN	1.0	6.0	4.0	1.0	.0	4.0	3.0	1.0	3.0	.0
MODE	.0	6.0	.0	.0	.0	2.0	.0	.0	.0	.0
BAROMETER, (ANEROID)										
MEAN	.5	1.2	.8	.6	.1	.9	.7	.5	.6	.4
MEDIAN	.0	1.0	1.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
BAROMETER, (MERCURY)										
MEAN	.5	1.0	.6	.6	.1	.8	.7	.4	.5	.3
MEDIAN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
BAR MAGNETS										
MEAN	5.3	12.7	9.2	5.1	1.1	9.0	6.8	5.5	6.5	3.3
MEDIAN	3.0	8.0	6.0	4.0	1.0	6.0	5.0	4.0	3.0	1.0
MODE	.0	6.0	4.0	2.0	.0	6.0	2.0	2.0	1.0	.0
BEAM BALANCE										
MEAN	.5	.8	.7	.7	.1	.5	.7	.6	.6	.5
MEDIAN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
BEAKERS										
MEAN	6.0	10.5	7.8	7.8	.8	7.1	7.6	5.9	6.9	4.7
MEDIAN	3.0	8.0	6.0	4.0	.0	4.0	5.0	4.0	4.0	.0
MODE	.0	12.0	6.0	.0	.0	.0	.0	.0	.0	.0
OVERHEAD PROJECTOR										
MEAN	.2	.7	.3	.2	.0	.3	.4	.4	.3	.1
MEDIAN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
COMPASS										
MEAN	3.4	8.1	6.2	3.0	.7	6.0	4.8	4.3	4.7	1.3
MEDIAN	1.0	5.0	3.0	2.0	1.0	2.0	2.0	2.0	3.0	1.0
MODE	1.0	6.0	1.0	1.0	.0	1.0	1.0	1.0	1.0	.0
CONCAVE LENS										
MEAN	1.9	4.2	2.9	2.2	.3	3.2	2.5	1.9	2.2	1.3
MEDIAN	1.0	2.0	2.0	1.0	.0	1.0	1.0	1.0	1.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
CONVEX LENS										
MEAN	1.9	4.4	2.8	2.2	.3	3.3	2.2	2.1	2.2	1.2
MEDIAN	1.0	2.0	2.0	1.0	.0	1.0	1.0	1.0	1.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
DRY CELLS										
MEAN	3.5	8.8	5.9	3.4	.7	6.9	4.8	3.7	4.3	1.7
MEDIAN	2.0	6.0	4.0	3.0	.0	4.0	4.0	2.0	3.0	1.0
MODE	.0	.0	6.0	4.0	.0	2.0	2.0	.0	.0	.0
ELECTRIC BELL OR BUZZER										
MEAN	2.0	6.2	3.4	1.8	.3	4.4	3.0	2.1	2.1	.9
MEDIAN	1.0	3.0	2.0	1.0	.0	2.0	2.0	1.0	1.0	.0
MODE	.0	2.0	2.0	1.0	.0	1.0	1.0	1.0	.0	.0
ELECTRIC PUSH BUTTON										
MEAN	1.6	5.3	2.9	1.4	.2	3.7	2.5	1.7	1.7	.7
MEDIAN	1.0	2.0	2.0	1.0	.0	2.0	1.0	1.0	1.0	.0
MODE	.0	.0	.0	1.0	.0	.0	1.0	.0	.0	.0

TABLE 30.-- MEAN, MEDIAN, AND MODE NUMBER OF ITEMS OF SCIENCE EQUIPMENT AND APPARATUS IN PUBLIC ELEMENTARY SCHOOLS, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62 (CONTINUED)

ITEM	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
FLASKS										
MEAN	4.0	7.5	5.7	4.9	.6	4.5	5.1	4.9	5.0	2.8
MEDIAN	2.0	5.0	4.0	3.0	.0	3.0	4.0	2.0	2.0	.0
MODE	.0	.0	2.0	.0	.0	.0	.0	.0	.0	.0
SCHOOL GARDEN										
MEAN	.3	.6	.5	.2	.1	.6	.5	.3	.3	.1
MEDIAN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GLOBE										
MEAN	2.5	7.8	4.0	2.2	.8	4.5	3.3	3.2	3.1	1.2
MEDIAN	1.0	1.0	1.0	1.0	.0	1.0	1.0	1.0	1.0	1.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ALCOHOL BURNER										
MEAN	1.3	2.6	1.9	1.5	.2	1.7	1.7	1.8	1.8	.6
MEDIAN	.0	1.0	1.0	1.0	.0	1.0	1.0	1.0	1.0	.0
MODE	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0
BUNSEN BURNER (FIXED GAS)										
MEAN	.7	.9	.5	1.1	.0	.2	.3	.3	1.1	.7
MEDIAN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
BUNSEN BURNER (PORTABLE PROPANE)										
MEAN	.5	1.5	.8	.4	.0	.4	.8	.6	.7	.2
MEDIAN	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
CANNED HEAT STOVES										
MEAN	.2	.8	.2	.2	.0	.5	.2	.1	.1	.1
MEDIAN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GAS STOVE										
MEAN	.2	.2	.2	.2	.1	.2	.1	.1	.1	.2
MEDIAN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
HOT PLATE,ELECTRIC										
MEAN	.8	1.6	1.2	.7	.6	1.3	1.2	.9	.8	.6
MEDIAN	1.0	1.0	1.0	.0	1.0	1.0	1.0	1.0	1.0	1.0
MODE	.0	.0	1.0	.0	1.0	1.0	1.0	.0	.0	.0
HORSESHOE MAGNETS										
MEAN	3.1	7.7	5.1	3.0	.8	5.9	4.3	2.9	3.7	1.7
MEDIAN	2.0	4.0	3.0	2.0	1.0	3.0	2.0	2.0	2.0	1.0
MODE	1.0	2.0	2.0	2.0	1.0	2.0	2.0	.0	1.0	1.0
INSULATED COPPER WIRE (NO. OF LBS.)										
MEAN	2.4	4.2	3.2	2.7	1.0	2.9	2.6	2.3	3.1	1.9
MEDIAN	1.0	2.0	1.0	1.0	.0	1.0	1.0	1.0	1.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
LIGHT BULBS, MINIATURE										
MEAN	3.8	10.0	5.6	3.6	1.5	6.8	5.2	5.4	3.7	2.1
MEDIAN	1.0	6.0	3.0	1.0	.0	2.0	2.0	2.0	1.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
METER STICKS										
MEAN	2.0	3.9	2.6	2.6	.4	2.2	2.1	2.1	2.4	1.7
MEDIAN	.0	1.0	.0	1.0	.0	.0	.0	.0	1.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MICROSCOPE										
MEAN	1.5	1.9	2.3	1.6	.4	1.5	1.7	1.6	1.2	1.4
MEDIAN	1.0	1.0	1.0	1.0	.0	1.0	1.0	1.0	1.0	1.0
MODE	.0	.0	1.0	1.0	.0	.0	1.0	.0	.0	.0
MINERAL OR ROCK COLLECTION										
MEAN	1.5	2.6	1.8	1.7	.8	2.2	1.6	1.9	1.8	1.0
MEDIAN	1.0	1.0	1.0	1.0	.0	1.0	1.0	1.0	1.0	1.0
MODE	1.0	1.0	.0	1.0	.0	1.0	1.0	1.0	.0	1.0

TABLE 30.-- MEAN, MEDIAN, AND MODE NUMBER OF ITEMS OF SCIENCE EQUIPMENT AND APPARATUS IN PUBLIC ELEMENTARY SCHOOLS, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT, 1961-62 (CONTINUED)

ITEM	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
MUSEUM CASE										
MEAN	.2	.8	.4	.2	.1	.6	.4	.1	.3	.1
MEDIAN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NATURE TRAIL										
MEAN	.1	.1	.1	.1	.1	.1	.2	.1	.1	.1
MEDIAN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
PORTABLE LABORATORY										
MEAN	.4	.7	.7	.4	.2	.5	.6	.6	.4	.3
MEDIAN	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
PRISM										
MEAN	2.3	5.5	3.2	2.8	.3	4.2	2.5	2.2	2.2	1.9
MEDIAN	1.0	3.0	2.0	1.0	.0	2.0	2.0	1.0	1.0	.0
MODE	.0	2.0	2.0	1.0	.0	1.0	1.0	.0	.0	.0
READING GLASS										
MEAN	2.9	6.2	5.5	2.6	.6	5.4	4.1	3.0	3.4	1.6
MEDIAN	1.0	3.0	3.0	1.0	.0	2.0	2.0	1.0	2.0	1.0
MODE	1.0	2.0	2.0	1.0	.0	1.0	1.0	1.0	.0	.0
SCIENCE KIT										
MEAN	1.3	2.2	2.5	1.2	.2	1.7	2.0	1.8	1.6	.6
MEDIAN	1.0	1.0	1.0	1.0	.0	1.0	1.0	1.0	1.0	.0
MODE	.0	.0	1.0	.0	.0	.0	1.0	1.0	.0	.0
SPRING BALANCE										
MEAN	1.2	2.2	1.6	1.5	.2	1.5	1.4	1.1	1.1	1.0
MEDIAN	.0	1.0	1.0	1.0	.0	1.0	1.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TEST TUBES										
MEAN	2.9	5.8	3.5	3.5	1.0	3.5	3.7	2.6	2.3	2.9
MEDIAN	1.0	2.0	2.0	1.0	.0	1.0	1.0	1.0	1.0	.0
MODE	.0	1.0	1.0	1.0	.0	1.0	1.0	1.0	.0	.0
THERMOMETERS										
MEAN	4.4	9.5	7.4	4.2	1.1	7.2	5.6	4.2	5.4	2.7
MEDIAN	2.0	6.0	4.0	3.0	1.0	4.0	3.0	2.0	4.0	2.0
MODE	1.0	2.0	4.0	2.0	1.0	2.0	2.0	.0	1.0	1.0
TRANSFORMER										
MEAN	.4	.6	.6	.5	.1	.5	.5	.5	.4	.3
MEDIAN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TRIPOD MAGNIFYING GLASS										
MEAN	1.8	4.1	2.9	2.0	.2	3.2	2.1	1.8	1.7	1.4
MEDIAN	.0	1.0	1.0	1.0	.0	1.0	1.0	.0	.0	.0
MODE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TUNING FORK										
MEAN	1.8	5.3	2.5	1.9	.2	3.9	2.2	2.0	1.7	1.1
MEDIAN	1.0	2.0	2.0	1.0	.0	2.0	1.0	1.0	1.0	.0
MODE	.0	2.0	1.0	1.0	.0	1.0	1.0	1.0	.0	.0

TABLE 31.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING IMPROVISED EQUIPMENT, BY FREQUENCY, BY GRADE GROUP, AND BY SCHOOL ENROLLMENT. 1961-62.

FREQUENCY AND GRADE GROUPS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	31.5	51.3	41.0	25.1	29.3
OCCASIONALLY	55.4	37.0	46.2	59.1	60.8
RARELY OR NEVER	13.2	11.7	12.8	15.8	9.9
KINDERGARTEN					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	21.7	37.9	27.2	14.3	17.1
OCCASIONALLY	47.5	42.4	38.6	44.8	74.3
RARELY OR NEVER	30.8	19.7	34.2	40.9	8.6
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	28.9	48.0	36.8	21.9	29.5
OCCASIONALLY	54.8	43.3	50.3	56.4	58.5
RARELY OR NEVER	16.3	8.7	12.9	21.7	12.0
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	37.9	62.3	52.8	30.8	31.4
OCCASIONALLY	55.7	31.1	44.8	62.4	59.2
RARELY OR NEVER	6.5	6.6	2.4	6.7	9.4
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	31.9	58.9	45.3	27.6	30.4
OCCASIONALLY	61.8	23.7	53.7	67.1	61.4
RARELY OR NEVER	6.3	17.4	1.0	5.4	8.3

TABLE 32.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS HAVING PETTY CASH FUNDS FOR SCIENCE SUPPLIES, BY SCHOOL ENROLLMENT AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

AVAILABILITY	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
YES	24.6	36.3	37.1	22.6	15.1	39.1	35.8	21.8	28.2	15.9
NO	75.4	63.7	62.9	77.4	84.9	60.9	64.2	78.2	71.8	84.1

TABLE 33.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY STATUS OF SCIENCE CLUBS, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

ITEM	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
DESIRABILITY OF CLUBS										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
BELIEVE CLUBS DESIRABLE	78.0	81.5	78.4	76.7	79.1	77.1	74.2	81.6	76.7	79.3
DO NOT BELIEVE CLUBS DESIRABLE	22.0	18.5	21.6	23.3	20.9	22.9	25.8	18.4	23.3	20.7
ORGANIZED CLUBS										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HAVE ORGANIZED CLUBS	7.1	20.5	11.1	5.0	4.6	13.7	11.0	10.2	7.8	2.9
DO NOT HAVE ORGANIZED CLUBS	92.9	79.5	88.9	95.0	95.4	86.3	89.0	89.8	92.2	97.1

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 34.--MEAN, MEDIAN, AND MODE ANNUAL PER-PUPIL OUTLAY AND PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY ANNUAL PER-PUPIL OUTLAY FOR SCIENCE EQUIPMENT AND APPARATUS, BY SCHOOL ENROLLMENT AND ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

PER-PUPIL OUTLAY (IN CENTS)	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
MEAN	——	44	55	60	59	42	58	52	73	56
MEDIAN	——	28	38	49	22	23	41	33	60	44
MODE	——	14	13	12	11	13	14	13	12	11
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
0 TO 20	40.1	42.6	36.1	35.7	49.8	47.9	32.3	40.8	31.8	44.9
21 TO 40	9.4	18.9	16.1	8.1	3.9	18.8	17.3	15.3	9.4	2.4
41 TO 60	11.7	13.3	11.4	13.9	8.4	10.0	10.8	10.3	8.9	14.3
61 TO 80	10.6	7.9	10.6	15.7	3.4	5.5	12.1	9.2	6.4	13.9
81 TO 100	4.6	5.3	3.5	3.2	7.4	3.7	4.6	3.6	5.1	4.8
101 TO 125	4.6	2.6	8.3	4.3	2.5	4.4	5.9	6.5	9.1	1.4
126 TO 150	3.4	.2	3.7	3.5	3.7	2.3	5.3	3.5	5.6	1.9
151 AND OVER	15.6	9.2	10.4	15.7	20.9	7.5	11.6	10.8	23.7	16.4

TABLE 35.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS HAVING ACCESS TO NONSCHOOL SOURCE OF FUNDS FOR SCIENCE EQUIPMENT AND SUPPLIES, BY SCHOOL ENROLLMENT AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

AVAILABILITY	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
YES	20.4	35.2	25.9	22.2	10.4	38.6	30.0	23.2	18.3	12.4
NO	79.6	64.8	74.1	77.8	89.6	61.4	70.0	76.8	81.7	87.6

TABLE 36.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS WITH VARIOUS NONSCHOOL SOURCES OF FUNDS FOR SCIENCE EQUIPMENT AND SUPPLIES, BY SCHOOL ENROLLMENT AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

SOURCE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
PARENT-TEACHER ASSOCIATION	70.7	82.4	79.1	66.6	58.8	84.7	84.6	81.0	55.8	52.0
LOCAL BUSINESS	8.8	4.5	11.4	4.8	19.0	8.2	12.3	7.6	7.4	8.0
OTHER SOURCES	32.0	32.7	17.4	40.3	35.9	20.3	23.8	17.3	44.2	48.0

NOTE. PERCENTAGES DO NOT ADD TO 100 PERCENT BECAUSE OF DUPLICATE RESPONSE.

TABLE 37.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY DEGREE OF DIFFICULTY OF VARIOUS BARRIERS TO SCIENCE TEACHING, BY SCHOOL ENROLLMENT AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

BARRIER AND DEGREE OF DIFFICULTY	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
LACK CONSULTANT SERVICE										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	36.7	25.4	29.0	38.8	41.9	16.7	31.0	39.2	31.8	45.4
SOME DIFFICULTY	39.2	39.8	41.2	38.6	38.4	43.0	42.4	47.2	43.8	32.5
NO DIFFICULTY	24.1	34.8	29.8	22.6	19.6	40.3	26.6	13.6	24.3	22.1
LACK OF SUPPLIES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	32.2	13.3	11.3	27.5	60.4	13.1	14.3	27.7	20.5	50.6
SOME DIFFICULTY	48.1	39.0	57.9	51.1	36.8	47.7	51.5	54.0	58.3	40.1
NO DIFFICULTY	19.7	47.7	30.8	21.4	2.8	39.1	34.2	18.4	21.2	9.2
INADEQUATE ROOM FACILITIES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	35.2	19.5	14.5	34.4	56.6	19.3	25.4	25.3	25.3	50.6
SOME DIFFICULTY	41.3	49.8	55.6	40.9	28.4	48.4	47.0	48.8	43.5	34.1
NO DIFFICULTY	23.5	30.7	29.9	24.7	15.0	32.3	27.6	25.9	31.1	15.3
INSUFFICIENT FUNDS										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	27.1	16.6	17.0	25.0	40.6	16.7	17.9	34.5	24.8	32.0
SOME DIFFICULTY	43.3	36.2	43.4	47.9	37.5	41.1	50.0	41.1	41.4	43.0
NO DIFFICULTY	29.6	47.2	39.6	27.1	21.9	42.2	32.2	24.4	33.8	25.0
TEACHERS LACK SCIENCE KNOWLEDGE										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	13.5	21.2	19.8	13.2	7.2	16.7	15.8	15.9	13.4	11.1
SOME DIFFICULTY	56.9	60.6	63.4	55.7	52.7	62.4	63.0	60.1	55.7	53.0
NO DIFFICULTY	29.6	18.1	16.8	31.1	40.1	20.9	21.2	24.0	30.9	35.8
LACK INSERVICE OPPORTUNITIES										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	14.9	3.1	7.3	11.2	29.0	7.3	12.4	17.1	13.7	17.9
SOME DIFFICULTY	45.4	37.5	47.4	47.5	42.0	33.0	49.8	49.1	46.5	45.2
NO DIFFICULTY	39.7	59.5	45.2	41.2	29.1	59.7	37.8	33.8	39.8	36.9
TEACHERS' INABILITY TO IMPROVISE										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	9.4	10.4	6.6	9.4	11.7	8.1	8.7	7.3	4.8	13.0
SOME DIFFICULTY	56.1	56.9	63.7	54.7	51.8	51.9	61.3	67.3	60.0	50.1
NO DIFFICULTY	34.4	32.6	29.7	35.9	36.6	39.9	30.0	25.5	35.2	37.0
TEACHERS UNFAMILIAR WITH METHODS										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	10.8	13.5	12.5	12.5	6.3	12.7	11.1	12.1	11.3	9.6
SOME DIFFICULTY	53.2	64.2	62.7	53.0	43.4	57.2	59.2	60.0	58.0	45.5
NO DIFFICULTY	36.0	22.3	24.8	34.5	50.3	30.1	29.7	27.9	30.7	44.9
NOT ENOUGH TIME FOR SCIENCE										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	17.3	8.7	6.9	14.0	32.7	12.5	14.2	9.0	16.8	22.5
SOME DIFFICULTY	39.4	34.6	40.4	38.1	41.4	34.3	42.4	46.2	40.8	36.8
NO DIFFICULTY	43.3	56.7	52.7	47.9	25.9	53.2	43.4	44.9	42.3	40.8
LACK OF COMMUNITY SUPPORT										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	12.9	5.8	4.6	10.4	25.1	6.4	8.2	12.7	10.3	17.8
SOME DIFFICULTY	26.9	17.8	18.6	30.6	29.8	15.7	23.3	35.2	24.4	29.8
NO DIFFICULTY	60.2	76.4	76.9	58.9	45.0	77.9	68.5	52.1	65.3	52.5
TEACHERS LACK INTEREST										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	5.8	2.7	7.6	7.6	2.3	4.3	4.2	6.2	2.7	8.3
SOME DIFFICULTY	32.3	42.3	44.4	34.9	16.6	42.4	46.0	44.2	39.8	17.7
NO DIFFICULTY	61.8	55.0	48.0	57.6	81.1	53.3	49.7	49.6	57.6	74.0
PROGRAM NOT CLEARLY DETERMINED										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	5.8	3.5	2.3	5.3	10.0	4.2	5.0	4.1	9.3	5.3
SOME DIFFICULTY	27.3	21.7	22.3	34.4	21.8	14.2	22.0	33.9	24.2	32.2
NO DIFFICULTY	66.9	74.8	75.4	60.3	68.2	81.5	73.0	62.0	66.5	62.6
OTHER AREAS MORE IMPORTANT										
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	3.9	6.5	1.9	2.8	6.9	2.4	3.8	3.1	5.6	3.8
SOME DIFFICULTY	23.5	22.2	20.1	20.5	31.1	18.7	20.6	27.4	25.5	23.6
NO DIFFICULTY	72.6	71.3	78.0	76.7	62.0	78.9	75.6	69.6	68.9	72.6

NOTE. THE BARRIERS ARE RANKED FROM 1 TO 13 BASED ON THEIR MEAN DEGREE OF DIFFICULTY WHERE GREAT DIFFICULTY IS WEIGHTED 3, SOME DIFFICULTY IS WEIGHTED 2, AND NO DIFFICULTY IS WEIGHTED 1.

TABLE 38.-- ANNUAL PER-PUPIL EXPENDITURE IN PUBLIC ELEMENTARY SCHOOLS FOR SCIENCE EQUIPMENT AND SUPPLIES, BY DEGREE OF DIFFICULTY OF SELECTED BARRIERS TO SCIENCE TEACHING AND BY SCHOOL ENROLLMENT, 1961-62

BARRIER AND DEGREE OF DIFFICULTY	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
LACK OF SUPPLIES					
GREAT DIFFICULTY	.29	.27	.28	.35	.43
SOME DIFFICULTY	.64	.30	.90	.99	1.98
NO DIFFICULTY	.61	.45	.74	.92	5.01
INSUFFICIENT FUNDS					
GREAT DIFFICULTY	.53	.26	1.00	.41	.73
SOME DIFFICULTY	.51	.36	.63	.66	1.40
NO DIFFICULTY	.69	.39	.87	1.39	2.70
TEACHERS LACK INTEREST					
GREAT DIFFICULTY	.39	.32	.35	.72	.62
SOME DIFFICULTY	.55	.39	.59	.96	2.39
NO DIFFICULTY	.64	.33	1.02	.82	.97
NOT ENOUGH TIME					
GREAT DIFFICULTY	.44	.17	.64	.63	1.22
SOME DIFFICULTY	.60	.37	.69	1.06	1.17
NO DIFFICULTY	.60	.38	.88	.78	1.53
LACK INSERVICE OPPORTUNITIES					
GREAT DIFFICULTY	.56	.41	.57	.67	.57
SOME DIFFICULTY	.78	.45	1.05	1.00	1.44
NO DIFFICULTY	.46	.30	.60	.82	1.85

TABLE 39.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY DEGREE OF DIFFICULTY OF SELECTED BARRIERS TO SCIENCE TEACHING AND SCHOOL AVERAGE CLASS SIZE, 1961-62

BARRIER	TOTAL SCHOOLS	AVERAGE CLASS SIZE INTERVALS				
		19 PUPILS AND UNDER	20 TO 24 PUPILS	25 TO 29 PUPILS	30 TO 34 PUPILS	35 PUPILS AND OVER
INADEQUATE ROOM FACILITIES						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	35.2	51.2	49.2	11.6	24.2	31.2
SOME DIFFICULTY	41.3	31.3	29.1	59.4	45.9	42.4
NO DIFFICULTY	23.5	17.5	21.7	29.0	29.9	26.4
LACK OF SUPPLIES AND EQUIPMENT						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	32.2	53.4	33.7	7.4	19.1	22.4
SOME DIFFICULTY	48.1	40.1	44.1	57.1	56.2	46.5
NO DIFFICULTY	19.7	6.5	22.2	35.5	24.7	31.2
INSUFFICIENT FUNDS						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	27.1	32.3	47.9	10.8	26.1	23.3
SOME DIFFICULTY	43.3	45.0	28.4	48.6	41.9	37.4
NO DIFFICULTY	29.6	22.7	23.7	40.6	32.0	39.4
INABILITY TO IMPROVISE						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	9.4	14.9	4.5	5.4	6.4	4.2
SOME DIFFICULTY	56.1	50.2	60.6	62.0	57.5	66.1
NO DIFFICULTY	34.4	35.0	34.9	32.6	36.1	29.7
NO TIME TO TEACH SCIENCE						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
GREAT DIFFICULTY	17.3	27.9	19.7	7.6	7.0	10.1
SOME DIFFICULTY	39.4	39.8	22.8	51.0	32.4	39.0
NO DIFFICULTY	43.3	32.3	57.5	41.4	60.6	50.9

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 40.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY WAYS OF EXHIBITING CHILDREN'S SCIENCE WORK, AND BY SCHOOL ENROLLMENT, 1961-62

ITEM	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
EXHIBITS OF SCIENCE MATERIALS IN CLASSROOMS					
TOTALS	100.0	100.0	100.0	100.0	100.0
YES	67.7	72.6	78.2	73.7	48.8
NO	32.3	27.4	21.9	26.3	51.2
EXHIBITS ELSEWHERE IN BUILDING (HALL, LIBRARY)					
TOTALS	100.0	100.0	100.0	100.0	100.0
YES	31.4	58.7	51.0	29.6	12.9
NO	68.6	41.3	49.0	70.4	87.1
BUILDINGWIDE EXHIBIT (OR SCIENCE FAIR)					
TOTALS	100.0	100.0	100.0	100.0	100.0
YES	18.6	46.2	28.4	16.1	9.2
NO	81.4	53.8	71.6	83.9	90.8
SCHOOL PARTICIPATED IN CITYWIDE OR COUNTYWIDE SCIENCE FAIR					
TOTALS	100.0	100.0	100.0	100.0	100.0
YES	18.6	39.4	22.2	21.0	8.3
NO	81.4	60.6	77.8	79.0	91.7
SCHOOL PARTICIPATED IN COLLEGE-SPONSORED FAIR					
TOTALS	100.0	100.0	100.0	100.0	100.0
YES	5.9	12.3	6.3	8.2	.7
NO	94.1	87.7	93.7	91.8	99.3
SCHOOL REPRESENTED IN A STATE SCIENCE FAIR					
TOTALS	100.0	100.0	100.0	100.0	100.0
YES	1.4	1.0	1.7	1.0	1.9
NO	98.6	99.0	98.3	99.0	98.1
SCHOOL PARTICIPATED IN NATIONAL SCIENCE FAIR					
TOTALS	100.0	100.0	100.0	100.0	100.0
YES	.4	.2	1.4	.1	.0
NO	99.6	99.8	98.6	99.9	100.0

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 41.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS WITH SCIENCE INSERVICE EDUCATION ACTIVITIES, BY SPONSORSHIP, BY SCHOOL ENROLLMENT, AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

ACTIVITY AND SPONSORSHIP	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
TEACHERS' MEETINGS										
LOCAL LEVEL	58.4	81.7	65.4	58.5	45.2	75.7	68.0	67.4	68.8	40.8
SCHOOL SYSTEM LEVEL	60.2	59.1	62.1	62.7	54.2	74.6	72.3	61.1	62.6	49.2
STATE LEVEL	23.0	17.1	15.0	25.8	28.1	17.2	21.4	17.8	29.5	23.8
COLLEGE SPONSORED	17.9	14.7	23.1	15.0	17.9	18.8	23.4	13.1	20.8	15.3
CURRICULUM DEVELOPMENT AND REVISION										
AT LOCAL LEVEL	47.0	46.9	45.6	46.4	50.0	41.9	45.9	52.1	57.3	41.2
SCHOOL SYSTEM LEVEL	63.4	86.7	72.6	67.5	35.0	88.5	82.0	74.1	66.5	40.2
STATE LEVEL	22.6	15.4	11.0	22.4	41.2	11.7	17.1	15.6	22.0	31.7
COLLEGE SPONSORED	9.7	5.0	5.5	12.4	11.2	5.6	6.5	6.8	7.9	14.7
ELEMENTARY SCIENCE COURSES										
LOCAL LEVEL	15.3	17.5	10.1	15.7	19.0	20.0	12.5	13.4	12.2	16.8
SCHOOL SYSTEM LEVEL	28.0	49.1	28.3	33.1	15.4	51.8	36.2	30.8	26.2	17.5
STATE LEVEL	19.0	12.8	15.4	19.1	23.5	11.8	13.2	16.9	26.0	20.8
COLLEGE SPONSORED	65.3	60.7	77.7	66.2	53.6	62.1	69.6	66.2	60.4	66.5
ELEMENTARY SCIENCE WORKSHOPS										
LOCAL LEVEL	23.5	35.1	23.7	24.1	19.0	35.8	24.4	22.9	13.5	24.9
SCHOOL SYSTEM LEVEL	52.8	77.0	57.8	53.5	39.5	80.5	71.2	59.5	39.9	39.7
STATE LEVEL	22.5	11.2	16.7	28.9	19.8	12.5	19.8	19.0	34.0	21.3
COLLEGE SPONSORED	42.9	35.3	46.5	41.2	44.0	32.0	39.0	41.7	41.4	50.1
VISITATIONS AND DEMONSTRATION TECHNIQUES										
LOCAL LEVEL	43.8	66.0	57.7	37.5	21.4	58.7	47.0	46.5	53.2	27.0
SCHOOL SYSTEM LEVEL	60.0	73.1	67.0	54.5	54.4	76.9	70.0	54.5	48.1	54.2
STATE LEVEL	19.9	12.6	6.7	24.5	38.1	6.8	17.0	11.8	25.2	30.5
COLLEGE SPONSORED	14.9	5.8	15.8	19.4	4.4	9.1	10.9	15.2	14.4	22.0
TV AND RADIO PROGRAMS										
LOCAL LEVEL	39.5	44.7	41.1	40.0	34.7	35.1	38.4	48.2	55.8	30.3
SCHOOL SYSTEM LEVEL	35.4	67.6	45.0	27.8	28.0	78.5	41.5	30.9	25.8	20.2
STATE LEVEL	28.0	16.6	14.2	31.6	42.7	15.1	27.2	20.5	20.9	40.4
COLLEGE SPONSORED	26.2	13.6	27.7	27.7	25.6	15.2	25.6	23.3	26.3	32.3

NOTE. PERCENTAGES DO NOT ADD TO 100 PERCENT BECAUSE OF DUPLICATE RESPONSE.

TABLE 42.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS USING DEFINITE PROCEDURES TO IDENTIFY CHILDREN WITH SPECIAL INTEREST OR APTITUDE IN SCIENCE, BY SCHOOL ENROLLMENT AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

ITEM	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
USE DEFINITE PROCEDURES	49.7	58.3	54.4	42.8	54.9	56.8	51.2	50.7	49.0	47.5
DO NOT USE DEFINITE PROCEDURES	50.3	41.7	45.6	57.2	45.1	43.2	48.8	49.3	51.0	52.5

TABLE 43.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS MAKING EXTRA PROVISIONS FOR CHILDREN WITH SPECIAL APTITUDE OR INTEREST IN SCIENCE, BY TYPE AND FREQUENCY OF PROVISIONS, BY GRADE GROUP, AND BY SCHOOL ENROLLMENT. 1961-62

A. GIVE MORE RESPONSIBILITY FOR REGULAR SCIENCE LESSONS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	32.4	45.4	40.1	30.4	27.9
OCCASIONALLY	49.2	40.6	47.5	51.5	48.5
RARELY OR NEVER	18.3	13.9	12.5	18.1	23.6
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	23.9	29.2	27.5	22.5	22.1
OCCASIONALLY	49.0	52.7	50.1	50.3	45.4
RARELY OR NEVER	27.1	18.1	22.4	27.3	32.5
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	34.3	55.5	49.0	28.6	26.5
OCCASIONALLY	53.8	35.9	45.4	59.6	55.4
RARELY OR NEVER	11.9	8.5	5.6	11.8	18.0
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	44.8	64.2	53.0	47.6	37.2
OCCASIONALLY	41.2	18.2	45.4	39.7	43.3
RARELY OR NEVER	14.0	17.6	1.6	12.6	19.5

B. GIVE SPECIAL ASSIGNMENTS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	28.8	27.6	28.8	40.3	28.8
OCCASIONALLY	29.5	24.4	17.0	41.5	53.9
RARELY OR NEVER	41.7	47.9	54.3	18.3	17.2
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	15.3	23.6	15.5	15.5	13.1
OCCASIONALLY	48.1	49.8	58.3	43.4	46.1
RARELY OR NEVER	36.6	26.6	26.1	41.1	40.7
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	28.3	49.8	40.7	25.7	18.0
OCCASIONALLY	52.4	40.0	47.2	51.8	59.8
RARELY OR NEVER	19.3	10.3	12.1	22.5	22.2
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	31.0	61.8	34.4	38.0	19.2
OCCASIONALLY	51.3	21.1	61.5	49.1	52.8
RARELY OR NEVER	17.7	17.1	4.1	12.9	28.0

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 43.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS MAKING EXTRA PROVISIONS FOR CHILDREN WITH SPECIAL APTITUDE OR INTEREST IN SCIENCE, BY TYPE AND FREQUENCY OF PROVISIONS, BY GRADE GROUP, AND BY SCHOOL ENROLLMENT. 1961-62 (CONTINUED)

C. ASSIGN NONRELATED SCIENCE PROJECTS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	45.0	30.4	35.6	48.4	49.4
OCCASIONALLY	15.1	23.0	18.5	12.8	14.7
RARELY OR NEVER	39.9	46.5	45.9	38.8	35.9
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	8.4	13.1	8.9	6.6	10.0
OCCASIONALLY	31.6	47.9	42.0	28.9	23.7
RARELY OR NEVER	60.0	39.0	49.2	64.6	66.4
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	16.3	28.4	23.5	10.6	16.6
OCCASIONALLY	44.7	47.1	48.4	44.9	40.8
RARELY OR NEVER	39.0	24.5	28.1	44.5	42.6
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	21.9	33.0	29.3	24.3	15.7
OCCASIONALLY	36.9	33.0	36.9	35.4	38.6
RARELY OR NEVER	41.3	34.0	33.8	40.3	45.5

D. ENCOURAGE IN-CLASS DEMONSTRATIONS AND EXPERIMENTS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	39.8	51.4	40.1	19.7	20.4
OCCASIONALLY	29.1	23.3	27.3	41.9	40.4
RARELY OR NEVER	31.2	25.3	32.7	38.4	39.2
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	23.5	26.9	29.7	17.0	27.7
OCCASIONALLY	49.4	46.8	44.5	57.3	41.9
RARELY OR NEVER	27.1	26.4	25.8	25.8	30.4
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	37.1	53.7	49.3	26.7	39.4
OCCASIONALLY	49.3	37.2	37.8	59.8	45.5
RARELY OR NEVER	13.6	9.1	12.9	13.5	15.1
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	42.6	58.2	58.9	41.5	37.1
OCCASIONALLY	45.9	22.2	37.5	51.2	44.5
RARELY OR NEVER	11.5	19.6	3.6	7.3	18.4

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 43.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS MAKING EXTRA PROVISIONS FOR CHILDREN WITH SPECIAL APTITUDE OR INTEREST IN SCIENCE, BY TYPE AND FREQUENCY OF PROVISIONS, BY GRADE GROUP, AND BY SCHOOL ENROLLMENT. 1961-62 (CONTINUED)

E. PERMIT EXPERIMENTS AND WORK AFTER FINISHING OTHER ASSIGNMENTS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	45.8	46.0	44.6	46.8	45.3
OCCASIONALLY	32.1	28.5	28.3	34.7	31.6
RARELY OR NEVER	22.1	25.5	27.1	18.4	23.1
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	16.9	16.1	19.0	16.0	16.5
OCCASIONALLY	40.1	46.0	41.2	40.1	38.1
RARELY OR NEVER	43.0	37.9	39.8	43.9	45.4
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	24.6	30.2	31.6	18.6	26.4
OCCASIONALLY	46.6	50.1	46.6	44.8	48.5
RARELY OR NEVER	28.9	19.7	21.8	36.5	25.0
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	22.8	32.9	31.7	18.2	24.4
OCCASIONALLY	51.0	35.0	45.6	54.9	49.5
RARELY OR NEVER	26.2	32.1	22.7	26.9	26.2

F. ENCOURAGE AFTER-SCHOOL AND SATURDAY SCIENCE ACTIVITIES	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	13.5	7.8	12.1	23.5	24.8
OCCASIONALLY	34.4	24.9	23.0	58.8	64.1
RARELY OR NEVER	52.1	67.3	64.9	17.7	11.1
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	6.1	12.9	7.5	3.9	7.0
OCCASIONALLY	14.1	17.4	16.8	12.7	13.1
RARELY OR NEVER	79.8	69.8	75.7	83.3	79.9
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	8.8	18.5	13.5	5.5	8.0
OCCASIONALLY	19.4	25.7	25.3	19.5	13.1
RARELY OR NEVER	71.8	55.9	61.1	75.0	79.0
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	8.5	29.4	12.9	5.7	8.3
OCCASIONALLY	19.4	20.8	41.7	11.0	20.7
RARELY OR NEVER	72.1	49.8	45.3	83.3	71.0

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 43.--PERCENT OF PUBLIC ELEMENTARY SCHOOLS MAKING EXTRA PROVISIONS FOR CHILDREN WITH SPECIAL APTITUDE OR INTEREST IN SCIENCE, BY TYPE AND FREQUENCY OF PROVISIONS, BY GRADE GROUP, AND BY SCHOOL ENROLLMENT. 1961-62 (CONTINUED)

G. SCIENCE CLUBS	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS			
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER
ALL GRADES					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	5.3	14.7	6.7	3.6	5.1
OCCASIONALLY	9.8	10.9	13.2	5.3	13.3
RARELY OR NEVER	84.9	74.3	80.1	91.1	81.6
GRADES 1 TO 3					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	3.3	8.9	4.4	1.9	3.2
OCCASIONALLY	5.9	6.5	5.3	3.2	10.3
RARELY OR NEVER	90.9	84.7	90.2	94.8	86.5
GRADES 4 TO 6					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	5.6	15.7	7.1	4.2	4.6
OCCASIONALLY	8.6	12.1	12.7	4.2	10.8
RARELY OR NEVER	85.8	72.2	80.2	91.6	84.7
GRADES 7 AND 8					
TOTAL	100.0	100.0	100.0	100.0	100.0
VERY OFTEN	8.5	30.2	31.7	3.8	4.1
OCCASIONALLY	7.5	6.8	8.5	3.6	11.8
RARELY OR NEVER	84.0	63.0	59.8	92.6	84.1

NOTE. BECAUSE OF ROUNDING, PERCENTAGES DO NOT NECESSARILY ADD TO 100.

TABLE 44.-- PERCENT OF PUBLIC ELEMENTARY SCHOOLS BY TYPE OF PROCEDURES USED TO IDENTIFY CHILDREN WITH SPECIAL INTEREST OR APTITUDE IN SCIENCE, BY SCHOOL ENROLLMENT AND BY ADMINISTRATIVE UNIT ENROLLMENT. 1961-62

PROCEDURE	TOTAL SCHOOLS	SCHOOL ENROLLMENT GROUPS				ADMINISTRATIVE UNIT ENROLLMENTS				
		800 AND OVER	400 TO 799	50 TO 399	49 AND UNDER	25,000 AND OVER	6,000 TO 24,999	3,000 TO 5,999	600 TO 2,999	599 AND UNDER
STUDY STANDARDIZED ACHIEVEMENT TESTS	46.2	37.7	43.7	51.7	43.3	34.5	39.9	40.4	43.0	55.6
STUDY STANDARDIZED INTEREST TESTS	34.9	34.9	28.8	37.3	37.1	22.3	31.9	23.3	43.0	39.4
NOTE SUCCESS IN CLASS IN SCIENCE ACTIVITIES	86.3	86.9	90.0	85.9	83.7	91.1	93.3	80.2	84.6	82.9
NOTE ABILITY IN SCIENCE HOBBIES AND PROJECTS	75.2	75.0	77.6	83.7	63.2	87.2	76.6	79.2	77.7	68.7
OBSERVE PARTICIPATION IN SCIENCE FAIRS	39.7	53.1	51.7	47.4	17.9	58.0	51.7	45.4	50.6	22.2
NOTE READING HABITS	76.5	80.8	69.8	81.9	74.8	82.7	73.2	75.5	89.5	69.7
CONSULT WITH GUIDANCE COUNSELOR	12.9	21.3	21.5	14.4	2.6	19.5	11.3	6.9	13.8	13.1
OTHER	2.9	4.4	2.4	5.2	.2	6.0	3.3	1.2	5.6	1.0

NOTE. PERCENTAGES DO NOT ADD TO 100 PERCENT BECAUSE OF DUPLICATE RESPONSE.

Appendix B: Survey Questionnaire Form

OE-DSL-832 (11-60)
FORMERLY RSE-10

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

BUDGET BUREAU NO. 51R-374
APPROVAL EXPIRES: 7-15-62

SURVEY OF SCIENCE TEACHING IN THE ELEMENTARY SCHOOL
(GRADES K-8)

NAME & ADDRESS OF SCHOOL

COMPLETE AND RETURN THE COPY WHICH BEARS YOUR ADDRESS TO OFFICE OF EDUCATION IN THE ENCLOSED PRE-ADDRESSED POSTAGE-FREE ENVELOPE.
The unaddressed copy is for your file.

PURPOSE: This is a study of science teaching in the elementary schools of the Nation.

SCOPE: The survey is being conducted on a sampling basis. Your school has been selected as a member of a sample that will insure valid and reliable coverage of the United States, and that will reduce the overall burden of response on the elementary schools of the country. Your school may be the only one selected in your school system. For the survey to yield valid information, all forms must be returned. Your cooperation in responding is essential.

HANDLING OF INFORMATION: The completed questionnaire and the specific replies about science teaching in your school will be seen only by a few survey staff members in the Office of Education. The findings will be published in summary form so that the information from individual schools and school districts cannot be identified. Therefore, we hope you will be completely forthright in answering the questions.

DEFINITION: For purposes of this survey an ELEMENTARY SCHOOL is defined as an educational organization under one principal or head teacher, including any combination of grades from nursery school and/or kindergarten through grade 8, except any upper grades under a junior high school organization.

INSTRUCTIONS: This questionnaire is to be answered for an individual elementary school, not for the school system at large. Please check over the questionnaire to get an idea of the scope of questions asked before beginning to fill out the form. Check every item that applies.

A. IS YOUR SCHOOL AN ELEMENTARY SCHOOL ACCORDING TO THE ABOVE DEFINITION? *(Check one)*

1 ☐ Yes *(If checked, continue with item B)*

2 ☐ No *(If checked, indicate below what type of school yours is and disregard the rest of questionnaire and mail it back to us) - - -*

TYPE OF SCHOOL ______________________________

B. IS YOUR SCHOOL PREDOMINANTLY A SPECIAL PURPOSE SCHOOL? (e.g., Physically handicapped, ungraded slow learners, sight-saving, etc.) *(Check one)*

1 ☐ Yes *(If checked, indicate this special purpose below and disregard the rest of questionnaire and mail it back to us) - - -*

PURPOSE: ______________________________

2 ☐ No *(If checked, please fill in the rest of the questionnaire, but disregard any small minority of special classes in answering)*

C. SUGGESTED WAYS TO ANSWER QUESTIONNAIRE *(Check way used)*

1 ☐ by the elementary school principal with the help of a staff committee representing the various grade levels

2 ☐ by the elementary school principal with advice as necessary from teachers in the school

3 ☐ by the head teacher in small schools

4 ☐ Other *(specify)*: ______________________________

D. OFFICIAL NAME & ADDRESS OF SCHOOL DISTRICT

NAME OF PERSON REPORTING *(Print/type)*

DATE FILED

SIGNATURE OF PERSON REPORTING

E. WOULD YOU LIKE A COPY OF THE PUBLICATION SUMMARIZING THE RESULTS OF THIS STUDY WHEN IT IS AVAILABLE?

1 ☐ Yes 2 ☐ No

SPECIAL INSTRUCTION: *If any part of your school is prevailingly organized on a non-graded basis (such as a primary unit or intermediate unit), interpret first, second, third, etc., as the first, second, and third year of attendance beyond kindergarten and check all grades represented in items calling for information by grades accordingly. If you have some combination or multigrade classes such as grades 3 & 4, or 5 & 6, fill in the blanks for* __*EACH*__ *grade in items requiring information by grades.*

1. INDICATE THE __PREVAILING__ WAY THE CHILDREN ARE ORGANIZED IN YOUR SCHOOL. *(Check one box for each level that applies)*

LEVEL	STANDARD GRADES	NON-GRADED ORGANIZATION
Primary *(Grades 1, 2, 3)*	1 ☐	2 ☐
Intermediate *(Grades 4, 5, 6)*	1 ☐	2 ☐
Upper *(Grades 7, 8)*	1 ☐	2 ☐

2. GRADES PROVIDED FOR IN YOUR ELEMENTARY SCHOOL *(Check one)*

GRADES
1 ☐ K-2
2 ☐ K-3
3 ☐ K-4
4 ☐ K-5
5 ☐ K-6
6 ☐ K-7
7 ☐ K-8

GRADES
8 ☐ 1-3
9 ☐ 1-4
10 ☐ 1-5
11 ☐ 1-6
12 ☐ 1-7
13 ☐ 1-8

GRADES
14 ☐ 4-6
15 ☐ 4-8
16 ☐ 5-6
17 ☐ 5-8
18 ☐ 6-8
19 ☐ Other *(specify)** ____________

**If you have specified "other" such as grades 2-5 or 4-7 or 3-6, then consider them as you fill the rest of the questionnaire*

3. GIVE THE NUMBER OF CLASS UNITS AND TOTAL ENROLLMENT FOR EACH GRADE IN YOUR SCHOOL. *(If you have no classes or pupils in a particular grade use "O". DO NOT LEAVE ANY BLANK SPACES IN THIS QUESTION)*

GRADES	NO. OF CLASS UNITS	TOTAL ENROLLMENT BY GRADE
Kindergarten	____	____
First	____	____
Second	____	____
Third	____	____
Fourth	____	____
Fifth	____	____
Sixth	____	____
Seventh	____	____
Eighth	____	____
Combination:	____	____

____
(Specify grades:)

THROUGHOUT THE BALANCE OF THE QUESTIONNAIRE ANSWER ITEMS ONLY FOR GRADES INCLUDED IN YOUR SCHOOL. IF YOU DO NOT HAVE THE GRADE IN YOUR SCHOOL LEAVE THE ANSWER BLANK.

4. WHAT GRADES AND WHAT PART OF A SCHOOL YEAR IS SCIENCE TAUGHT AS A DEFINITE PART OF THE CURRICULUM IN YOUR SCHOOL? *(Check one box for __each grade__ in your school)*

GRADE	NOT TAUGHT AT ALL	TAUGHT LESS THAN ½ YR.	TAUGHT ½ YR. ONLY	TAUGHT MORE THAN ½ YR.
Kindergarten	1 ☐	2 ☐	3 ☐	4 ☐
First	1 ☐	2 ☐	3 ☐	4 ☐
Second	1 ☐	2 ☐	3 ☐	4 ☐
Third	1 ☐	2 ☐	3 ☐	4 ☐
Fourth	1 ☐	2 ☐	3 ☐	4 ☐
Fifth	1 ☐	2 ☐	3 ☐	4 ☐
Sixth	1 ☐	2 ☐	3 ☐	4 ☐
Seventh	1 ☐	2 ☐	3 ☐	4 ☐
Eighth	1 ☐	2 ☐	3 ☐	4 ☐

5. IS YOUR SCHOOL DEPARTMENTALIZED FOR TEACHING SCIENCE AT ANY GRADE LEVEL? *(This means the children have a special science teacher at scheduled specified times each week)*

1 ☐ Yes 2 ☐ No

IF __YES__, CHECK THE GRADE OR GRADES IN YOUR SCHOOL IN WHICH SCIENCE IS DEPARTMENTALIZED

GRADE	DEPARTMENTALIZED (SPECIAL SCIENCE TEACHER)
Kindergarten	1 ☐
First	1 ☐
Second	1 ☐
Third	1 ☐
Fourth	1 ☐
Fifth	1 ☐
Sixth	1 ☐
Seventh	1 ☐
Eighth	1 ☐

6. *DO NOT FILL OUT THIS ITEM FOR GRADES IN WHICH SCIENCE IS DEPARTMENTALIZED (See question 5)*
WHAT PATTERN OF SCIENCE TEACHING MOST APTLY DESCRIBES THE APPROACH USED IN YOUR SCHOOL IN GRADES WHERE SCIENCE IS TAUGHT BY THE REGULAR CLASSROOM TEACHER?

PATTERN OF SCIENCE TEACHING		*CHECK ONE PATTERN FOR EACH GRADE THAT APPLIES TO YOUR SCHOOL*								
		KINDER-GARTEN	FIRST GRADE	SECOND GRADE	THIRD GRADE	FOURTH GRADE	FIFTH GRADE	SIXTH GRADE	SEVENTH GRADE	EIGHTH GRADE
A. AS A SEPARATE SUBJECT (Time scheduled each week for teaching science)		1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐
B. INTEGRATED WITH OTHER SUBJECTS (taught along with or in relation to some other subject or subjects such as social studies)		2☐	2☐	2☐	2☐	2☐	2☐	2☐	2☐	2☐
C. INCIDENTALLY (No regular time set aside for science, but science concepts & ideas are developed when ever an appropriate occasion develops, when children raise questions or when some unanticipated event calls for special study)		3☐	3☐	3☐	3☐	3☐	3☐	3☐	3☐	3☐
D. COMBINATION *(Note your choice, use only one)*	SEPARATE SUBJECT AND INCIDENTAL	4☐	4☐	4☐	4☐	4☐	4☐	4☐	4☐	4☐
	OR									
	INTEGRATED AND INCIDENTAL	5☐	5☐	5☐	5☐	5☐	5☐	5☐	5☐	5☐
E. OTHER ______ *(Specify)*		6☐ ____	6☐ ____	6☐ ____	6☐ ____	6☐ ____	6☐ ____	6☐ ____	6☐ ____	6☐ ____

7. **IF ANY PART OF THE ELEMENTARY SCIENCE CURRICULUM IS REGULARLY TAUGHT AS A SEPARATE SUBJECT EITHER DEPARTMENTALIZED OR IN A REGULAR CLASSROOM, HOW MANY BLOCKS OF TIME OR PERIODS EACH WEEK ARE SCHEDULED FOR THIS PURPOSE?** *(Check one box for each grade in your school)*

	NUMBER OF PERIODS EACH WEEK					
GRADE	ONE	TWO	THREE	FOUR	FIVE	NOT TAUGHT AS SEP. SUBJ.
Kinder-garten	1☐	2☐	3☐	4☐	5☐	6☐
First	1☐	2☐	3☐	4☐	5☐	6☐
Second	1☐	2☐	3☐	4☐	5☐	6☐
Third	1☐	2☐	3☐	4☐	5☐	6☐
Fourth	1☐	2☐	3☐	4☐	5☐	6☐
Fifth	1☐	2☐	3☐	4☐	5☐	6☐
Sixth	1☐	2☐	3☐	4☐	5☐	6☐
Seventh	1☐	2☐	3☐	4☐	5☐	6☐
Eighth	1☐	2☐	3☐	4☐	5☐	6☐

8. **WHAT IS THE APPROXIMATE TOTAL TIME IN MINUTES PER WEEK DEVOTED TO TEACHING SCIENCE?** *(Give the approximate total number of minutes for each grade in your school)*

GRADE	APPROXIMATE MINUTES PER WEEK
Kinder-garten	
First	
Second	
Third	
Fourth	
Fifth	
Sixth	
Seventh	
Eighth	

9. WHO ACTUALLY TEACHES SCIENCE TO THE CHILDREN IN YOUR SCHOOL? *(Check one box for each grade in your school)*

SCIENCE TEACHING IN YOUR SCHOOL		KINDERGARTEN	FIRST GRADE	SECOND GRADE	THIRD GRADE	FOURTH GRADE	FIFTH GRADE	SIXTH GRADE	SEVENTH GRADE	EIGHTH GRADE
A. A CLASSROOM TEACHER WITH NO HELP FROM AN ELEMENTARY SCIENCE SPECIALIST OR CONSULTANT		1 ☐	1 ☐	1 ☐	1 ☐	1 ☐	1 ☐	1 ☐	1 ☐	1 ☐
B. A CLASSROOM TEACHER WITH HELP OF ELEMENTARY SCIENCE SPECIALIST OR CONSULTANT	(1) ATTACHED TO THE SCHOOL STAFF	2 ☐	2 ☐	2 ☐	2 ☐	2 ☐	2 ☐	2 ☐	2 ☐	2 ☐
	(2) FROM THE CENTRAL OFFICE STAFF	3 ☐	3 ☐	3 ☐	3 ☐	3 ☐	3 ☐	3 ☐	3 ☐	3 ☐
C. A SPECIAL SCIENCE TEACHER	(1) ON THE SCHOOL STAFF	4 ☐	4 ☐	4 ☐	4 ☐	4 ☐	4 ☐	4 ☐	4 ☐	4 ☐
	(2) ATTACHED TO A CENTRAL OFFICE STAFF	5 ☐	5 ☐	5 ☐	5 ☐	5 ☐	5 ☐	5 ☐	5 ☐	5 ☐
D. A CLASSROOM TEACHER WITH SPECIAL COMPETENCE IN SCIENCE TRADES CLASSES WITH OTHER TEACHERS		6 ☐	6 ☐	6 ☐	6 ☐	6 ☐	6 ☐	6 ☐	6 ☐	6 ☐
E. OTHER *(specify)*: ______ ______ ______		7 ☐ ______ ______ ______	7 ☐ ______ ______ ______	7 ☐ ______ ______ ______	7 ☐ ______ ______ ______	7 ☐ ______ ______ ______	7 ☐ ______ ______ ______	7 ☐ ______ ______ ______	7 ☐ ______ ______ ______	7 ☐ ______ ______ ______

10. IN ADDITION TO ASSISTANCE FROM THE PRINCIPAL, IS THERE OTHER CONSULTANT OR SUPERVISORY HELP IN TEACHING SCIENCE AVAILABLE FROM WITHIN THE SCHOOL SYSTEM?

1 ☐ Yes *(If "yes" check all that apply)* 2 ☐ No

1 ☐ General elementary supervisor with only general knowledge of science

1 ☐ General elementary supervisor with special competence in elementary science

1 ☐ Elementary science consultant, supervisor, or specialist

1 ☐ Classroom teacher with special training or competence in science

1 ☐ High school science teacher

1 ☐ Other *(Specify)*

____

____

____

11. IF CONSULTANT HELP IN SCIENCE IS AVAILABLE, TO WHAT EXTENT DO TEACHERS MAKE USE OF IT? *(Consider all types checked in question 10, and Check only ONE box for each grade group in your school)*

GRADE GROUPS	VERY OFTEN *(at least once a week)*	OCCASIONALLY *(about once a month)*	RARELY OR NEVER *(Less than once a month)*
ANY OF THE GRADES K-3	3 ☐	2 ☐	1 ☐
ANY OF THE GRADES 4-6	3 ☐	2 ☐	1 ☐
EITHER OR BOTH GRADES 7-8	3 ☐	2 ☐	1 ☐

REMARKS

12. *IF YOU ANSWERED "NO" TO QUESTION 10, DO NOT ANSWER THIS QUESTION.*

IF CONSULTANT HELP IS AVAILABLE IN YOUR SCHOOL, TO WHAT EXTENT IS EACH OF THE FOLLOWING WAYS OF WORKING USED AT EACH GRADE GROUP LEVEL? *Complete EVERY box for grade groups in your school by writing in one of the numbers of the following code:*

3 – USED VERY OFTEN
2 – USED OCCASIONALLY
1 – RARELY OR NEVER USED

CONSULTANT'S WAYS OF WORKING	GRADE GROUP: K	1-3	4-6	7-8
Planning or consulting with teachers	☐	☐	☐	☐
Teaching a science lesson within the classroom	☐	☐	☐	☐
Introducing science units	☐	☐	☐	☐
Providing materials	☐	☐	☐	☐
Helping plan field trips	☐	☐	☐	☐
Evaluation of science teaching	☐	☐	☐	☐
Demonstration teaching before groups of teachers	☐	☐	☐	☐
Organizing or directing workshops for teachers	☐	☐	☐	☐
Working with small groups of children	☐	☐	☐	☐
Other *(Specify)*: ______ ______	☐	☐	☐	☐

13. IS HEALTH TAUGHT PRIMARILY AS A SEPARATE SUBJECT OR IN RELATION TO OTHER SUBJECTS? *(Check one box for each grade group in your school)*

	GRADE GROUP: K	1-3	4-6	7-8
Taught separately	1 ☐	1 ☐	1 ☐	1 ☐
Taught with science	2 ☐	2 ☐	2 ☐	2 ☐
Taught with physical education	3 ☐	3 ☐	3 ☐	3 ☐
Integrated with all subjects	4 ☐	4 ☐	4 ☐	4 ☐
Other *(Specify)*: ______ ______ ______ ______	5 ☐	5 ☐	5 ☐	5 ☐

14. IS CONSERVATION EDUCATION TAUGHT AS A SEPARATE SUBJECT OR IN RELATION TO OTHER SUBJECTS? *(Check one box for each grade group in your school)*

	GRADE GROUP K	1-3	4-6	7-8
Taught separately	1 ☐	1 ☐	1 ☐	1 ☐
Taught with science	2 ☐	2 ☐	2 ☐	2 ☐
Taught with social studies	3 ☐	3 ☐	3 ☐	3 ☐
Integrated with all subjects	4 ☐	4 ☐	4 ☐	4 ☐
Other *(Specify)*: ______ ______ ______ ______	5 ☐	5 ☐	5 ☐	5 ☐

15. WHAT IS THE PRACTICE REGARDING THE ADOPTION OF SCIENCE TEXTBOOK SERIES? *(Check one box for each grade group in your school)*

	GRADE GROUP 1-3	4-6	7-8
No science textbook series adopted	1 ☐	1 ☐	1 ☐
Single science textbook series adopted	2 ☐	2 ☐	2 ☐
Two or more science series adopted	3 ☐	3 ☐	3 ☐

16. WHAT IS THE POLICY IN YOUR SCHOOL REGARDING TEACHING SCIENCE AND SOCIAL STUDIES TOGETHER IN A UNIFIED APPROACH AND TEACHING SCIENCE AS A SEPARATE SUBJECT? *(Check one box only)*

No official policy. Varies from teacher to teacher	1 ☐
Policy to teach science and social studies together	2 ☐
Policy to teach science as separate subject	3 ☐
Policy to teach science as a separate subject but integrate when appropriate with all subjects	4 ☐
Oth[illegible]fy) ______ ______ ______ ______	5 ☐

103

***EQUIPMENT* is defined as non-consumable, non-perishable items such as microscopes, scales, models, aquariums, etc. *SUPPLIES* are defined as perishable or easily breakable materials that must continually be replenished such as chemicals, dry cells, glassware, electric bulbs, copper wire, etc.**

17. TO WHAT EXTENT ARE EQUIPMENT & SUPPLIES FOR SCIENCE DEMONSTRATIONS AND EXPERIMENTS AVAILABLE IN YOUR SCHOOL? *(Check only one)*

4☐ Very plentiful

3☐ Generally adequate

2☐ Far from adequate

1☐ Completely lacking

18. TO WHAT EXTENT ARE THE FOLLOWING RESOURCES CONSULTED IN YOUR SCHOOL FOR SUGGESTIONS OF WHAT TO STUDY IN ELEMENTARY SCIENCE? *Complete ALL boxes using the following code to indicate the extent each listed resource is CONSULTED for each grade group in your school:*

3 – VERY OFTEN
2 – OCCASIONALLY
1 – RARELY OR NEVER

	GRADE GROUP			
RESOURCES	K	1-3	4-6	7-8
A. State guide or course of study	☐	☐	☐	☐
B. Administrative Unit (Dist., Co., City, etc.) guide or course of study	☐	☐	☐	☐
C. Local school guide or course of study	☐	☐	☐	☐
D. Science text books	☐	☐	☐	☐
E. Teachers own ideas	☐	☐	☐	☐
F. Other *(Specify)*	☐	☐	☐	☐

____

____

____

19. HOW MUCH USE IS MADE OF VARIOUS TEACHING AIDS IN YOUR SCHOOL? *(Complete ALL boxes, using the following code to indicate the extent of use of each teaching aid listed for each grade in your school*

3 – USED VERY OFTEN
2 – USED OCCASIONALLY
1 – USED RARELY OR NEVER

	GRADE GROUP			
TEACHING AIDS	K	1-3	4-6	7-8
A. Science textbooks	☐	☐	☐	☐
B. Materials for science experiments	☐	☐	☐	☐
C. Materials for teacher demonstration	☐	☐	☐	☐
D. Moving pictures	☐	☐	☐	☐
E. Kodachrome or lantern slides	☐	☐	☐	☐
F. Filmstrips	☐	☐	☐	☐
G. Excursions to school grounds	☐	☐	☐	☐
H. Excursions beyond school grounds	☐	☐	☐	☐
I. Phonograph records	☐	☐	☐	☐
J. Radio	☐	☐	☐	☐
K. Science library, trade, or supplementary books	☐	☐	☐	☐
L. Picture collections	☐	☐	☐	☐
M. Television	☐	☐	☐	☐
N. Science Workbooks	☐	☐	☐	☐
O. Museums	☐	☐	☐	☐
P. Outside speakers brought in	☐	☐	☐	☐
Q. Other *(Specify)*	☐	☐	☐	☐

____

____

____

20. IN WHAT TYPE OF ROOM IS SCIENCE PREDOMINATELY TAUGHT IN YOUR SCHOOL? *(Check one box for each grade level in your school)*

TYPE OF ROOM		KINDERGARTEN	FIRST GRADE	SECOND GRADE	THIRD GRADE	FOURTH GRADE	FIFTH GRADE	SIXTH GRADE	SEVENTH GRADE	EIGHTH GRADE
A. REGULAR CLASSROOM	WITH NO SPECIAL FACILITIES FOR SCIENCE	1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐
	WITH SPECIAL FACILITIES FOR SCIENCE	2☐	2☐	2☐	2☐	2☐	2☐	2☐	2☐	2☐
B. SPECIAL ROOM TO WHICH CHILDREN GO FOR SCIENCE		3☐	3☐	3☐	3☐	3☐	3☐	3☐	3☐	3☐
C. OTHER *(Specify)*: ______		4☐ ______	4☐ ______	4☐ ______	4☐ ______	4☐ ______	4☐ ______	4☐ ______	4☐ ______	4☐ ______

21. THERE IS GENERAL AGREEMENT THAT SCIENCE TEACHING IN ELEMENTARY SCHOOLS IS NOT DEPENDENT UPON AVAILABILITY OF ANY PARTICULAR PIECE OF EQUIPMENT OR APPARATUS. THE FOLLOWING LIST, ALTHOUGH NOT COMPLETE, INCLUDES ITEMS ON WHICH INFORMATION IS DESIRED AT THIS TIME. *(Give the approximate number of each listed item that is available for use by the elementary grades of your school. If the item is not available, write "O." DO NOT LEAVE ANY ITEMS BLANK)*

ITEM	APPROX. NUMBER		ITEM	APPROX. NUMBER	ITEM	APPROX. NUMBER
ANEMOMETER (Wind gauge)		GLOBE, terrestrial			MUSEUM CASE	
ANIMAL CAGE		HEAT SOURCE	Alcohol burner		NATURE TRAIL	
AQUARIUM			Bunsen burner (fixed gas)		PORTABLE LABORATORY (table, desk or wagon)	
BAROMETER, aneroid						
BAROMETER, mercury			Bunsen burner (Portable propane)		PRISM	
BAR MAGNETS					READING GLASS (magnifying)	
BEAM BALANCE			Canned heat stoves			
BEAKERS (heat resistant)			Gas stove		SCIENCE KIT (Commercial)	
BIOSCOPE			Hot plate, electric			
COMPASS		HORSESHOE MAGNETS			SPRING BALANCE	
CONCAVE LENS		INSULATED COPPER WIRE (give no. pounds)			TEST TUBES (dozen)	
CONVEX LENS					THERMOMETERS	
DRY CELLS #6 (1½ volt)		LIGHT BULBS, MINATURE			TRANSFORMER (small)	
ELECTRIC BELL OR BUZZER		METER STICKS			TRIPOD MAGNIFYING GLASS	
ELECTRIC PUSH BUTTON		MICROSCOPES			TUNING FORK	
FLASKS (heat resistant)		MINERAL OR ROCK COLLECTION				
SCHOOL GARDEN						

22. HOW FREQUENTLY DO TEACHERS AND CHILDREN MAKE AND/OR USE IMPROVISED, SIMPLE, AND INEXPENSIVE EQUIPMENT IN SCIENCE IN YOUR SCHOOL? *(Check one for each grade group in your school)*

GRADE GROUP	VERY OFTEN	OCCASIONALLY	RARELY OR NEVER
Kindergarten	3☐	2☐	1☐
Grades 1-3	3☐	2☐	1☐
Grades 4-6	3☐	2☐	1☐
Grades 7-8	3☐	2☐	1☐

23.

ORGANIZED SCIENCE CLUBS	YES	NO
Do you believe an organized Science Club for elementary school children is desirable?	1☐	2☐
Do you have an organized Science Club in your school?	1☐	2☐

REMARKS

24. ALLOTMENTS FOR SCIENCE EQUIPMENT AND SUPPLIES
(See definition of equipment and supplies above question 17)

A. Give an estimate of the expenditure for science equipment and supplies in the elementary grades of your school for the year 1961-62 $__________

B. Does your school have a revolving (Petty Cash) fund which teachers can draw on for science supplies? YES 1☐ NO 2☐

C. Does your school have any non-school (e.g., non-tax) sources of funds for science equipment & supplies? YES 1☐ NO 2☐

If yes, check each source that applies:

(1) Parent-Teacher Association 1☐

(2) Local business or industry 1☐

(3) Other *(specify):* 1☐

____

____

25. WHAT DEGREE OF DIFFICULTY DO THE FOLLOWING FACTORS OFFER TO EFFECTIVE SCIENCE TEACHING IN YOUR SCHOOL ? *Complete all boxes using the following code:*

3 – GREAT DIFFICULTY
2 – SOME DIFFICULTY
1 – NO DIFFICULTY

FACTORS	
Inadequate room facilities	☐
Lack of supplies and equipment	☐
Insufficient funds for purchasing needed supplies, equipment, and appropriate science reading materials	☐
Lack of community support for science program	☐
Inability of teachers to improvise materials and equipment	☐
Teachers do not have sufficient science knowledge	☐
Teachers do not know methods for teaching science	☐
Lack of adequate consultant service	☐
Teachers lack interest	☐
What science to teach in each grade has not been clearly determined	☐
School believes other areas more important than science	☐
Not enough time to teach science	☐
Lack of inservice opportunities	☐
Other *(specify)* ________________	☐

26. IN WHAT WAYS DID YOUR ELEMENTARY SCHOOL PARTICIPATE IN SCIENCE FAIRS & EXHIBITS DURING THE PAST YEAR? *(Check one box for each item)*

ITEM	YES	NO
Exhibits of pupil science materials were held in classrooms	1☐	2☐
Exhibits of pupil science materials were held somewhere in the building other than classrooms (hallway, library, foyer)	1☐	2☐
A building-wide exhibit (or science fair) was held	1☐	2☐
School participated in a city-wide or county-wide science fair	1☐	2☐
School participated in a college-sponsored fair	1☐	2☐
School was represented in a state science fair	1☐	2☐
School participated in a national science fair	1☐	2☐
Other *(specify):* ________________	1☐	2☐

____

27. DO YOU USE DEFINITE PROCEDURES FOR IDENTIFYING CHILDREN WITH SPECIAL INTEREST OR APTITUDE IN SCIENCE? *(Check one)*

YES 1☐ NO 2☐

If yes, check all the procedures used in your school:

Study the results of standardized science achievement tests	1☐
Study the results on standardized interest and aptitude tests	1☐
Note sustained success in day-to-day class activities in science	1☐
Note strong interest and ability in carrying on out-of-school science projects or hobbies	1☐
Observe participation in school science exhibits and fairs	1☐
Note science reading habits	1☐
Consult with the school guidance counselor	1☐
Other *(specify)* ________________	1☐

____

28. TO WHAT EXTENT IS EACH OF THE FOLLOWING PROVISIONS MADE FOR CHILDREN WITH SPECIAL APTITUDE OR INTEREST IN SCIENCE *(Check one box for each grade group in your school)*

PROVISIONS	GRADE GROUPS	VERY OFTEN	OCCASIONALLY	RARELY OR NEVER
Give more responsibility in connection with regular science lessons	Grades 1-3	3 ☐	2 ☐	1 ☐
	Grades 4-6	3 ☐	2 ☐	1 ☐
	Grades 7-8	3 ☐	2 ☐	1 ☐
Give special assignments not required of all children	Grades 1-3	3 ☐	2 ☐	1 ☐
	Grades 4-6	3 ☐	2 ☐	1 ☐
	Grades 7-8	3 ☐	2 ☐	1 ☐
Assign science projects not related to regular class science program	Grades 1-3	3 ☐	2 ☐	1 ☐
	Grades 4-6	3 ☐	2 ☐	1 ☐
	Grades 7-8	3 ☐	2 ☐	1 ☐
Encourage student to perform demonstrations or experiments before his classmates	Grades 1-3	3 ☐	2 ☐	1 ☐
	Grades 4-6	3 ☐	2 ☐	1 ☐
	Grades 7-8	3 ☐	2 ☐	1 ☐
Permit children to do experiments and work with science materials and equipment when they have finished other assignments	Grades 1-3	3 ☐	2 ☐	1 ☐
	Grades 4-6	3 ☐	2 ☐	1 ☐
	Grades 7-8	3 ☐	2 ☐	1 ☐
Encourage children to participate in after school or Saturday school-sponsored science activities	Grades 1-3	3 ☐	2 ☐	1 ☐
	Grades 4-6	3 ☐	2 ☐	1 ☐
	Grades 7-8	3 ☐	2 ☐	1 ☐
Invite children to join science club	Grades 1-3	3 ☐	2 ☐	1 ☐
	Grades 4-6	3 ☐	2 ☐	1 ☐
	Grades 7-8	3 ☐	2 ☐	1 ☐
Other *(specify)*	Grades 1-3	3 ☐	2 ☐	1 ☐
	Grades 4-6	3 ☐	2 ☐	1 ☐
	Grades 7-8	3 ☐	2 ☐	1 ☐
Other *(specify)*	Grades 1-3	3 ☐	2 ☐	1 ☐
	Grades 4-6	3 ☐	2 ☐	1 ☐
	Grades 7-8	3 ☐	2 ☐	1 ☐

29. **HOW IMPORTANT ARE THE FOLLOWING OBJECTIVES FOR TEACHING SCIENCE IN YOUR SCHOOL?** *(Check one box for each objective)*

OBJECTIVES	CONSIDERED		
	VERY IMPORTANT	SOME IMPORTANCE	LITTLE OR NO IMPORTANCE
To teach knowledge about typical areas of science study such as weather, electricity, plant and animal life, and the like	3 ☐	2 ☐	1 ☐
To prepare for high school science	3 ☐	2 ☐	1 ☐
To help children develop problem-solving skills	3 ☐	2 ☐	1 ☐
To help children learn concepts and ideas for interpreting their environment	3 ☐	2 ☐	1 ☐
To develop appreciations for and attitudes about the environment	3 ☐	2 ☐	1 ☐
To develop responsibility for the proper use of science knowledge for the betterment of man	3 ☐	2 ☐	1 ☐
To develop scientists	3 ☐	2 ☐	1 ☐
To develop hobbies and leisure-time activities	3 ☐	2 ☐	1 ☐
To help children learn how to think critically	3 ☐	2 ☐	1 ☐
To help children develop their curiosity and to ask what, how, and why questions	3 ☐	2 ☐	1 ☐
Other *(Specify any other science objectives in your school)* ____________________	3 ☐	2 ☐	1 ☐
____________________	3 ☐	2 ☐	1 ☐

30. **WHAT ARE THE OPPORTUNITIES TEACHERS IN YOUR SCHOOL HAVE FOR INSERVICE SCIENCE EDUCATION?**
(Check as many boxes as apply for each function)

INSERVICE SCIENCE EDUCATION FUNCTIONS		SPONSORSHIP				*(Specify any other sponsorships):*
		LOCAL SCHOOL LEVEL	SCHOOL SYSTEM LEVEL	STATE LEVEL	COLLEGE SPONSORED	
TEACHERS MEETINGS		1 ☐	1 ☐	1 ☐	1 ☐	1 ☐
CURRICULUM DEVELOPMENT AND REVISION		1 ☐	1 ☐	1 ☐	1 ☐	1 ☐
ELEMENTARY SCIENCE	COURSES	1 ☐	1 ☐	1 ☐	1 ☐	1 ☐
	WORKSHOPS	1 ☐	1 ☐	1 ☐	1 ☐	1 ☐
VISITATIONS & DEMONSTRATION TEACHING		1 ☐	1 ☐	1 ☐	1 ☐	1 ☐
TV & RADIO PROGRAMS		1 ☐	1 ☐	1 ☐	1 ☐	1 ☐
(Specify other functions):		1 ☐	1 ☐	1 ☐	1 ☐	1 ☐

Appendix C: Technical Notes

Sample Design

A stratified two-stage sample was used for this study. The universe from which the sample was drawn in the first stage consisted of the 34,040 school administrative units (school districts) reported by the Governments Division, Bureau of the Census, for the school year 1959–60. The sample of school administrative units needed for the first stage was designed in accordance with the following table:

Table A–1.—Sample design of the first stage

Administrative unit enrollment size	Number of administrative units		Sampling fraction
	Universe	Sample	
Total	**34,040**	**1,597**	
25,000 and over	118	118	1:1
6,000 to 24,999	818	299	1:3
3,000 to 5,999	1, 351	341	1:4
600 to 2,999	5, 995	395	1:15
599 and under	25, 758	444	1:58

A roster of all public elementary schools in the administrative units selected in the first stage was used in the second stage to draw a two-way stratified sample of schools for the second stage, as shown in table B–1.

Response Rate

Nonresponse during the first stage of the survey was negligible. Only one percent of the administrative units failed to respond.

During the two months of the main collection period of the second stage of the survey, 87.1 of the elementary schools selected for the sample responded. As indicated by table 1, the response rate was lowest among the very small schools. About 3.6 percent of the schools in the roster had to be dropped because they were out of the scope of this survey.

After the end of the main collection period, a special effort was made to obtain responses from a random sample of one-third of the nonrespondents, thus increasing the final response rate to a total of 87.9 percent. All of the estimates in this report are based on the total response. Table C–1 shows the final response by school enrollment size.

Table C–1.—Final response of public elementary schools

School enrollment size	Number of schools		Response rate
	Sample	Responding	
Total	**1,682**	**1,476**	**87.9**
800 and over	412	342	83.0
400 to 799	463	463	100.0
50 to 399	441	418	94.8
49 and under	366	253	69.1

Table B–1.—Roster and sample design of the second stage

Administrative unit enrollment size	Roster					Sample					Sampling fraction			
	Total schools	School enrollment size				Total schools	School enrollment size				School enrollment size			
		800 and over	400 to 799	50 to 399	49 and under		800 and over	400 to 799	50 to 399	49 and under	800 and over	400 to 799	50 to 399	49 and under
Total	**18,866**	**2,920**	**7,466**	**7,264**	**1,216**	**1,743**	**417**	**467**	**454**	**405**				
25,000 and over	9, 111	2, 349	4, 266	2, 411	84	792	340	267	154	31	1:7	1:16	1:16	1:3
6,000 to 24,999	5, 058	413	1, 988	2, 316	341	421	49	121	146	105	1:8	1:16	1:16	1:3
3,000 to 5,999	2, 830	118	899	1, 531	282	272	23	57	91	101	1:5	1:16	1:16	1:3
600 to 2,999	1, 186	35	297	716	138	109	4	21	45	39	1:8	1:16	1:16	1:3
599 and under	681	5	16	289	371	149	1	1	18	129	1:7	1:16	1:16	1:3

Sampling Errors

The standard errors computed for several of the estimates are given below. The reader may wish to keep in mind that two standard errors are needed to establish a confidence interval for an estimate at the 95 percent level. At this level of confidence there would be only one chance out of 20 that the true value falls outside the confidence interval.

Tests of significance, chi square and analysis of variance, were carried out for certain parts of the data in tables 5, 6, 7, 9, 10, 13, 16, 18, 19, 20, 21, 22, 23, 25, 28, 29, 30, 32, 33, 34, 37, 38, 39, 42, 43. Copies of the results may be obtained on request from Paul E. Blackwood, U.S. Office of Education, 400 Maryland Avenue SW., Washington, D.C., 20202.

Table D–1.—Standard errors and coefficients of variation of selected estimates

Table number	Characteristic	Estimate	Standard error	Coefficient of variation
2	Enrollment	24, 567, 000	436, 760	0. 02
	Total	**24, 567, 000**	**436, 760**	**.02**
	Kindergarten	**2, 196, 000**	**65, 090**	**.03**
7	Number of schools departmentalized for science teaching at some level	13, 067	1, 207	. 09
9	Number of schools teaching science less than half a year in:			
	Kindergarten	8, 902	1, 708	. 19
	First grade	11, 037	1, 919	. 17
	Second grade	8, 763	1, 841	. 21
	Third grade	6, 047	1, 559	. 26
	Fourth grade	4, 236	1, 484	. 35
	Fifth grade	1, 658	459	. 28
	Sixth grade	1, 399	393	. 28

Appendix D: Bibliography

1. **Ashbaugh, Byron L., and Beuschlein, Muriel.** *Things To Do in Science and Conservation.* Danville, Ill.: The Interstate Printers and Publishers, Inc., 1960. 163 p.
2. **Bathurst, Effie G., and Hill, Wilhelmina.** *Conservation Experiences for Children.* U.S. Department of Health, Education, and Welfare, Office of Education Bulletin 1957, No. 16. Washington: U.S. Government Printing Office. 192 p. 75 cents.
3. **Blough, Glenn O., Schwartz, Julius, and Huggett, Albert J.** *Elementary Science and How To Teach It.* New York: Holt, Rinehart and Winston, 1958. p. 12–23.
4. ——— *It's Time for Better Elementary School Science.* Washington: National Education Association, National Science Teachers Association, 1958. 48 p.
5. **Brandwein, Paul F., Watson, Fletcher, and Blackwood, Paul E.** *Teaching High School Science: A Book of Methods.* New York: Harcourt, Brace and World Inc., 1958.
6. **Council of Chief State School Officers.** *Purchase Guide for Programs in Science, Mathematics and Modern Foreign Languages.* Boston: Ginn and Co., 1959. 336 p.
7. **Craig, Gerald S.** *Science for the Elementary-School Teacher.* New York: Ginn and Co., New edition, 1962. 894 p.
8. **Dean, Stuart E.** *Elementary School Administration and Organization.* U.S. Department of Health, Education, and Welfare, Office of Education, OE–23006A. Washington: U.S. Government Printing Office. 1960. 125 p. 55 cents.
9. **Dunfee, Maxine, and Greenlee, Julian.** *Elementary School Science: Research, Theory and Practice.* Washington: National Education Association, Association for Supervision and Curriculum Development, 1957. 67 p.
10. **Grout, Ruth E.** *Health Teaching in Schools.* Philadelphia: W. B. Saunders Co., 1963. 415 p.
11. **Hone, Elizabeth B., Joseph, Alexander, and Victor, Edward.** *Teaching Elementary Science: A Sourcebook for Elementary Science.* New York: Harcourt, Brace and World, Inc., 1962. 552 p.
12. **Hubler, Clark.** *Working With Children in Science.* Boston: Houghton Mifflin Co., 1957. 425 p.
13. **Jacobson, Willard, and Tannenbaum, Harold E.** *Modern Elementary School Science: A Recommended Sequence.* New York: Bureau of Publications, Teachers College, Columbia University, 1961. 194 p.
14. **Kambly, Paul E., and Suttle, John E.** *Teaching Elementary School Science: Methods and Resources.* New York: The Ronald Press Co., 1963. 492 p.
15. **Lewis, June E., and Potter, Irene C.** *The Teaching of Science in the Elementary School.* Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1961.
16. **National Education Association.** *Science for Today's Children.* Thirty-second Yearbook. Washington: National Education Association, Department of Elementary School Principals, 1953. Vol. 33, No. 1. 311 p.
17. **National Society for the Study of Education.** *Rethinking Science Education.* Fifty-ninth Yearbook. Chicago: University of Chicago Press, 1960. 344 p.
18. **Navarra, John G., and Zafforoni, Joe.** *Science Today for the Elementary-School Teacher.* Evanston, Ill.: Harper and Row, Publishers, Inc., 1960. 470 p.
19. **Piltz, Albert.** *Science Equipment and Materials for Elementary Schools.* U.S. Department of Health, Education, and Welfare, Office of Education, OE–29029. Washington: U.S. Government Printing Office. 1961, 66 p. 30 cents.
20. ———, and **Gruver, William J.** *Science Equipment and Material: Science Kits.* U.S. Department of Health, Education, and Welfare, Office of Education,

OE-29049. Washington: U.S. Government Printing Office. 1963, 26 p. 15 cents.

21. **Schlessinger, Fred R.** *Science Facilities for Our Schools, K-12.* Washington: National Education Association, National Science Teachers Association, 1963. 26 p.

22. **Schneider, Elsa, and McNeely, Simon A.** *Teachers Contribute to Child Health.* U.S. Department of Health, Education, and Welfare, Office of Education, OE-28001. Washington: U.S. Government Printing Office. 1951, 44 p. 25 cents.

23. **Tannenbaum, Harold E., and Stillman, Nathan.** *Science Education for Elementary School Teachers.* Boston: Allyn and Bacon, Inc., 1960. 339 p.

24. **U.S. Department of Health, Education, and Welfare, Office of Education.** *Aids for Teaching Science: A Suggested Checklist for Assessing a Science Program.* OE-29034A. Washington: U.S. Government Printing Office. 1964, 19 p. 15 cents.

25. ——— *Report of the National Defense Education Act, Fiscal Years 1961 and 1962.* OE-10004-62. Washington: U.S. Government Printing Office. 1963, 126 p. $1.

U.S. GOVERNMENT PRINTING OFFICE: 1965 O—747-300